ONAUTICS DIVISION
MAY -2 1949

Southern FLIGHT

Including MODERN AIRPORTS

AUGUST 1948
35 cents

AERO

RYAN NAVION

See Page 7

Big Plane Utility
with Light Plane Economy

Check **Swift 125**

Big Plane Features and Performance!

- 140 mph Cruising Speed
- 48 mph Landing Speed
- 425 Mile Range
- 1,000 fpm Rate of Climb
- 100 lb. Baggage Capacity
- All-Metal Construction
- Modern, Low-Wing Design
- Retractable Landing Gear
- Hydraulic Flaps
- Steerable Tail Wheel
- Hydraulic Shock Absorbers
- Self-Starter and Generator
- Aeromatic® Propeller (deluxe model)
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No other airplane under $6,000 gives you ALL these features.

Swift 125 is practical for profitable business or pleasure flying. The 125 h.p. Continental engine gives you extra speed for cross-country flying. Modern, low-wing design means smooth response, and easy handling. Hydraulic flaps make landings slow and easy.

The Swift 125 is thrifty, too. Weather resistant all-metal skin cuts upkeep costs. Replaceable wing tips and sections make repairs fast and economical. Your nearby Swift Dealer invites you to fly the New Swift 125. Compare it with other planes costing up to $6,000 . . . chances are, you'll choose the Swift 125.

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Metal Top Canopy—Shades cabin from direct rays of sun. Hinges up and locks for easy entrance and exit. Now standard equipment on all models.

Non-Stop Range Increased 25%—575 miles maximum cruising range with new auxiliary tank (available as an accessory). New fuel venting system for extra safety.

New Cabin Window improves appearance, gives side visibility. Flat shelf behind seat for hats, log books, maps, etc.

Texas Engineering & Mfg. Co.

BOX 6191S DALLAS, TEXAS

OTHER TEMCO PRODUCTS: U. S. and foreign governments and airlines use our facilities for aircraft modification, conversion, and overhaul in important volume. General products include vending machines, Coca-Cola truck bodies, metal cabinets, and parts for many products.

Swift 125

The Flying Red Horse

SERVES

SOUTHWESTERN AVIATION

WITH QUALITY AVIATION FUELS AND LUBRICANTS...AND KEEPS ITS PLANES READY *for Instant Service*

With its Aviation Department headed by Marketing Manager W. B. Rew, shown at left in the photo at bottom of the page, with E. J. Keller, Engineer for the Department, Magnolia serves airports throughout the Southwest and keeps its fleet of planes ready to serve Flying Red Horse Airport Dealers. In the photo at left is W. R. Linn, whose skilled workmanship keeps the fleet in tip-top shape.

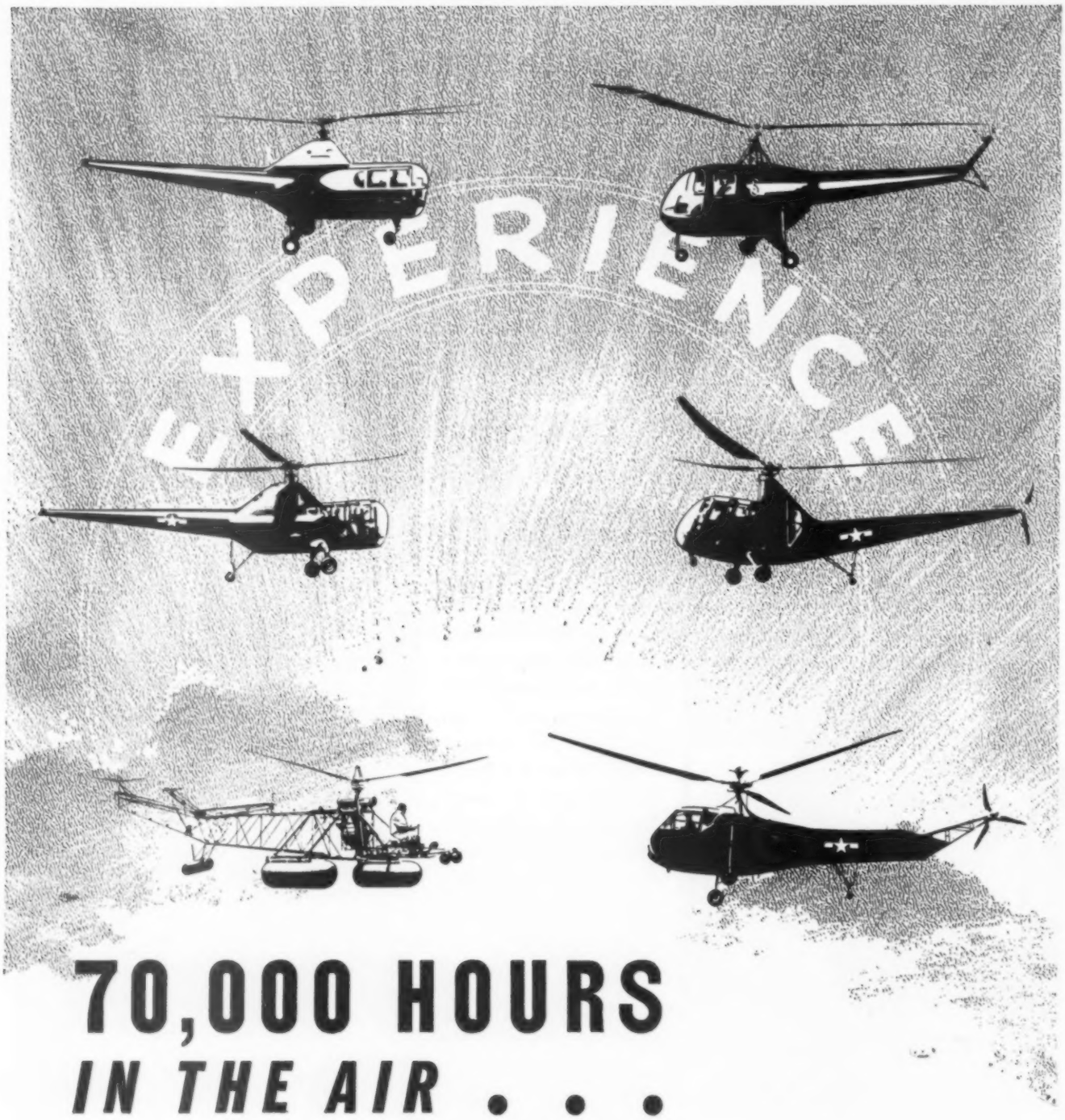
FORWARD WITH *Aviation*

Mobilgas AIRCRAFT

Mobiloil AERO

MAGNOLIA PETROLEUM COMPANY

DALLAS 1, TEXAS



70,000 HOURS
IN THE AIR . . .

The unmatched record of 70,000 hours in the air reflects the ruggedness and dependability for which Sikorsky helicopters are known the world over.

SIKORSKY AIRCRAFT

BRIDGEPORT, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

The Birdmen's Perch

By *Major Al Williams*, ALIAS, "TATTERED WING TIPS,"
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.

And in case you weren't around last month, here's what the great new oil in that can does:

1. Exhaustive tests have proved that this oil will free sticking valves and rings and keep them free *much* longer. That means money saved on top overhauls.

2. It keeps foreign matter cleaned from engine surfaces and in suspension, so that it's flushed away at oil drains! That means that parts wear longer and you save money on replacements.

3. It allows *many* more hours between overhauls! (It's been tested for over 100,000 hours in actual fleet service.) That means money saved on major overhauls.

Does that sound good? Here's more:

The new Gulfpride Aviation Series D is a fully detergent dispersent type with oxidation inhibitors and anti-foam agents. It took us *six years* of experimental work to bring you the world's finest oil for light aircraft engines!

But remember . . . Gulfpride Aviation Series D is for horizontally opposed engines. For all other types, keep on using Gulf Aviation Oil or Gulfpride Motor Oil.

EVEN IF YOUR DEALER OR OPERATOR IS NOT A GULF MAN, TELL HIM THAT···
HE CAN CARRY THIS GREAT NEW OIL! WE'RE ENCOURAGING ALL DEALERS TO STOCK IT..
BECAUSE EVERY PILOT WILL WANT TO USE GULFPRIDE AVIATION SERIES D····
THE ONLY LUBRICANT OF ITS KIND IN THE WORLD!
Gulfpride
GULF

WHICH is YOUR Family's *New Air Car?*

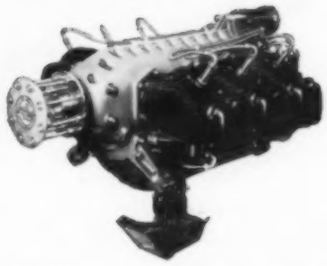
Thanks to the vision and enterprise of the builders of personal aircraft, many a family group can now realize a long-cherished wish to make weekend, vacation, and other trips as a family, in the family plane. The thing which makes this possible, of course, is the multiple-passenger type of airplane which several leaders in the industry are sponsoring today. Its utility is by no means limited to the business and industrial users for whom it was primarily designed. The same qualities which recommend it so highly to the busy executive — speed, economy, safety, and day-after-day dependability — adapt it to the needs of the family group as well.

Continental Motors is proud of having played a part in the development of most of these planes . . . proud too, that most of them, like the great majority of all personal aircraft, standardize on Continental power.

The chances are that one of these fine "family cars of the air" is available through a Continental Motors dealer at your own airport. Why not see him about one for YOUR family today?

Continental Motors Corporation

MUSKEGON, MICHIGAN



C145. ***This 6-cylinder horizontally-opposed engine emphasizes the range of the Continental line, which provides an engine of outstanding performance for every personal plane need. The C145 is a high-performance engine, delivering its 145 horsepower at proper engine speed for high propeller efficiency.***

E165 and E185. ***These E series engines are the most highly-engineered units in the entire Red Seal line. 6-cylinder, horizontally-opposed, they are outstanding for the horsepower they develop at their extremely light weight and at exceptionally low revolutions per minute. They combine inherent dependability and high performance with marked economy of operation.***

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Southern FLIGHT

Including MODERN AIRPORTS

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AIR Report

Significant Trends in the News

Navions Hiked $995

Settlement in late July of the strike at Ryan Aeronautical Company was to see an increase in the production rate and early deliveries of 4-place Navions, now strong in demand. A price increase of $995, boosting the Navions to $9,985, was to be announced early in August. Realistic T. Claude Ryan has said in the past that further increases in costs will mean higher prices for his popular airplane.

Bonanza Boosted to $10,975

Beech Aircraft Corporation's sudden 16.2-percent hike in the factory price of its Bonanza to $10,975 reflects over-optimistic pricing in the beginning, when the Bonanza sold at $7,345, as well as recent improvements and rising material costs, which outpaced notable savings through production efficiency. Vice President John P. Gaty has suggested that it is time for all manufacturers to adopt a more realistic pricing of their products consistent with costs. Some personal plane producers did this before Beech took action. Others who introduced postwar models at loss prices either revised their pricing or suffered heavy losses, several going out of business. "Optimistic pricing" resulted from overestimating demand, with prices based on production costs for future volume which was slow in coming or never materialized. In one case the "break even" point for production tooling, materials purchasing and pricing was 3,500 airplanes, below which losses were to be accepted in diminishing quantity and beyond which profits would accrue. But the firm gave up the ghost before producing a third that number, at a loss of millions. In this and other cases heavy losses were absorbed in the field by distributors and dealers, many of whom knew better but protested unsuccessfully while trying to operate on skimpy discounts. Realistic pricing by Beech and others means more stability for the industry, which has staged a surprising recovery in recent months (see page 12 for details).

No B-36 Cutback

Earlier government plans to drastically reduce Convair's order of 6-engine B-36 bombers now under construction have been abandoned since Consolidated Vultee changed hands recently and LaMotte Cohu's sweeping clean-out of former executive job holders. In addition to B-36 completions, the Fort Worth plant will hire

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additional thousands for construction of a large order of B-49 jet Wings for Northrop. Among Convair axe victims were Harry Woodhead; former president now heading Douglas Aircraft's new industrial products program; E. M. Laddon, engineering executive and large Convair stockholder, and Commander Roland G. Mayer, Fort Worth Division manager who has retired to his ranch. Mayer and other high-salaried Fort Worth officials were not replaced—an executive committee of existing employes will operate the B-36 and B-49 program.

$500 Increase for Swift

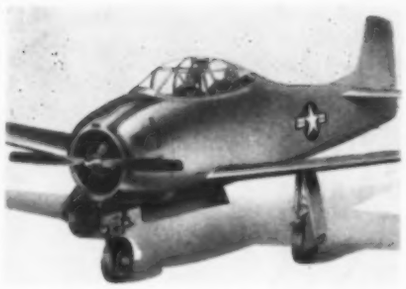
Texas Engineering & Manufacturing Co. of Dallas is expected to announce soon a $500 increase in the factory price of the de luxe Swift 125, raising it to $4,495. Under the new price, the Swift is completely soundproofed and has a spinner. Incidentally, Temco's large backlog of orders was increased to $7,000,000 recently when it obtained a Chinese contract for P-51 and P-47 modifications.

VA Ignores Congress

Repeated refusal by Veterans Administration officials in many branch offices to enroll new GI flight training students has caused a storm of protest messages to Congressmen, whose legislation authorized enrollments for veterans requesting flight training "in connection with present or contemplated business or occupation." In Washington the Veterans Affairs Committee was expected to obtain satisfaction from the VA or institute action to force compliance with the Act authorizing flight training. One operator in Texas talked of going to court over the VA's refusal to honor a veteran's affidavit that flight training was sought for his use of airplanes in ranching. In New Mexico a VA official wrote an applicant in black and white that his application was denied because no commercial license was necessary to become a crop duster and that crop dusting, which the veteran contemplated, was "purely avocational." Another VA official in New Mexico turned down an application from a prospective crop duster in a letter saying there were already 50,000 pilots who could not obtain employment as crop dusters. Both of these letters prove VA hostility and disregard of facts as well as Congressional intentions. VA refusals will close down many operations as current students complete their courses.

National Air Races

Looks like the $25,000 Goodyear Trophy Race for planes with 190-cu. in. (85 hp.) engines will again prove to be the biggest spectator drawing card during the 22nd annual National Air Races in Cleveland, Sept. 4-6. A full field of 32 starters, including new planes by Champion Steve Wittman, Tony Levier, Art Chester and others,



TRICYCLE TRAINER for primary and basic instruction is new North American T-28, 266 of which have been ordered by the Air Force. With an 800-h.p. Wright R-1300 engine, it has a 292-mph. top speed, 31,650-ft. service ceiling and gross weight of 5,862 lbs.
(North American Aviation Photo.)

is assured. The course this year is completely in front of the stands in full view. Over 100 Goodyear-class racers are flying or under construction. Here is the Cleveland race program:

Saturday, Sept. 4: Finish of Bendix Trophy Race from California; Tinnerman International Trophy Race; Goodyear Trophy heats.

Sunday, Sept. 5: Allison Jet Trophy Race; Sohio Handicap Trophy Race for P-51's, P-38's and P-63's; Kendall Trophy Race for Women; Goodyear Trophy Semi-Finals.

Monday, Sept. 6: Thompson Free-for-All Trophy Race; Goodyear Trophy Finals; Air Force Jet Dashes.

Tickets, ranging in price from $1 general admission to $10.20 reserved seats, may be ordered from Air Races Headquarters, Union Commerce Building, Euclid Avenue at East 9th St., Cleveland 14.

Navion Wins Texas Race

Tex Anderson, Medina rancher, won a $1,000 bond by placing first in the Texas Air Races last month, sponsored by the Texas Private Fliers Association's Dallas unit. His 83-mile course speed was 149 mph. in the handicap race. L. H. Decker in a BT-13 and J. M. Lee in a Taylorcraft placed second and third.

Californians Cop Soaring Awards

The Southwest Soaring Contest's four highest scoring pilots were Californians as points were added up closing last month's sailplane regatta at Grand Prairie, near Dallas. John Robinson, Arcadia, Calif., with 640 points, was first; Ray Parker, 29 Palms, Calif., was second with 482; Dick Lyon, Los Angeles, was third with 360; Dick Johnson, Palm Springs, Calif., was fourth with 347, and Wally Wiberg of Dallas was fifth with 275 points. The meet, sponsored by Texas Soaring Association, Grand Prairie Chamber of Commerce and the North Texas Agricultural College's School of Aeronautics, attracted many contestants from the National Soaring Meet at Elmira, N. Y., in which top scorers were Paul MacCready, San Marino, Calif., 1,042 points and John Robinson, 933.

Jim Ray Joins McDonnell

James G. Ray, pioneer in rotary wing aircraft and airline organizer, has been named manager of the helicopter and propulsion division of McDonnell Aircraft Corp., of St. Louis, which is developing the world's largest and first twin-engine helicopter for the Navy, a miniature ram-jet helicopter "flying motorcycle" for the Air Force and pulse-jet and ram-jet engines for the government. Robert R. Osborn, a consulting engineer, former chief engineer for Curtis-Wright Airplane and Stinson, has been named chief engineer of McDonnell's helicopter and propulsion division. With over 3,000 hours as a rotary wing pilot, Ray was a World War I pursuit pilot and was associated with Pitcairn Aviation from its beginning in developing airmail operations and airplane and autogiro design. More recently he figured prominently in organization of All American Aviation's air mail pick-up operations and Southwest Airways feeder operations.

Short Snorts

J. W. (Jake) Miller, former Piper domestic sales manager, has joined Ryan Aeronautical Company as factory representative in completing the Navion distributor-dealer network. . . . Leonard Larson has resigned as personal aircraft sales manager of Texas Engineering & Manufacturing Co., Inc., for which he directed marketing of the Swift 125. . . . Factory-installed Safe Flight stall warning indicators are now available on Piper airplanes. . . . The five leading lightplane manufacturers in number of unit deliveries during the first half of 1948 were Piper with 866, Cessna with 769, Stinson with 557, Beech with 403 Bonanzas and Luscombe with 371. Gaining and showing strength was Ryan, with 279 Navions. Incidentally, Les Bowman's General Aeronautics, Fort Worth, is leading the nation in Navion sales with 47 deliveries to date; Aviation Consultants, Harrisburg, Pa., is second high Navion distributor with 27 deliveries to date.

NAA Officers

Officers elected at the National Aeronautics Association's 26th annual convention in Minneapolis are: Louis E. Leverone, Chicago, president; L. Welch Pogue, Washington, chairman; Ed Sweeney, Chicago, first vice president; Fred Crawford, Cleveland, second vice president; Robert Ramspeck, Washington, vice president, air transport; Jerome Lederer, New York, vice president, air safety; E. N. Angus, Oaklyn, N. J., vice president, air youth; Al Near, Louisville, vice president, airports; Mrs. W. E. Brown, Akron, secretary; R. M. Phelps, Washington, executive vice president. ★ ★ ★

BUILT TO TAKE HEAVY DUTY PUNISHMENT

STURDIEST LANDING GEAR! Only the *Ryan Navion* gives you *all* these safe, practical features for landing and taxiing: 1—Nosewheel is *steerable* and as big as many main gear wheels; 2—High ground clearance; 3—Over-size tires; 4—Wide wheel tread; 5—Husky, deep-stroke shock absorbers; 6—Extra powerful, equalized hydraulic brakes. You can drop a *Navion* in hard with utmost safety... maintain splendid control in cross winds... taxi smoothly over rough fields.

Ryan Navion Combines Maximum Safety with Utility in a Thoroughly Modern Design

Designed for the average man to fly and land anywhere, the 150 mph *Ryan Navion* gives quick take-offs and fast climbing. Performance is outstanding from improvised fields and at high altitudes, even when fully loaded. Optional auxiliary tank increases range to 750 miles. You get exceptional stability even in rough air. *Navion's* stall-resistant wing gives full aileron control at speeds so low it will amaze you. High-lift, full-deflection flaps put the *Navion* down for by far the shortest, slowest landings of any plane in its class.

All four passengers enjoy fine car comfort. Luggage compartment can hold 180 pounds with more spaciousness than most sedan trunks. For easiest bulk cargo loadings and easiest rear-seat passenger entrance and exit, *Navion's* exclusive canopy rolls way back. Visibility is a full 360°. Sound insulation and ventilation are finely perfected in the 1948 model.

Only an actual demonstration flight with *your* hand on the wheel can fully display the *Navion's* intelligently chosen and well-engineered combination of features. For free business trip, demonstration or illustrated booklet, write us today on your letterhead.

THICK, ALL-METAL SKIN gives rugged strength... durable enamel finish means permanent beauty, lower maintenance cost. Choice of 4 striking colors.

SELECTIVE 2-CONTROL SYSTEM. Smoother, more relaxed flying even for beginners. Steer with wheel alone or with rudder. Automatic coordination!

The Thoroughly Proven Post-War Plane *Ryan Navion*

Rely on Ryan RYAN AERONAUTICAL COMPANY, 608 LINDBERGH FIELD, SAN DIEGO 12, CALIFORNIA

Just among ourselves

EDITORIALS

A LESSON FROM PIONEER

THERE is a growing number of well meaning and sincere people in U. S. aviation who would be happy to see the demise of many recently certificated "feeder" type, short haul airlines. They believe that the Civil Aeronautics Board erred in granting so many certificates and that enough operating records are now available to prove that short haul operations are not economically feasible.

We can not agree with this school of thought which is raising its voice louder and louder against the struggling "feeder" type of operations. The trouble with these critics is that they are too eager to condemn these new projects without giving them a chance. Most of the new lines have been operating too short a time to say with any degree of finality that they will or will not succeed. If those who are "agin" the development of the local, short haul lines will pick on the oldest of the feeders — Pioneer Air Lines, which started operations three years ago this month — they might have some points worth listening to. Trouble is Pioneer has been too successful to find much fault with. You simply can't get an airline started and going places in much under three years, no matter the size of your bank account or the potential of your route. The critics, especially the old established trunk lines, forget how long it took to build up passenger and cargo traffic in the years gone by.

None of the old lines can boast of the growth Pioneer has shown from scratch just three short years ago. During 1945 the line carried 4,452 passengers, 20,687 in 1946 and last year it carried 62,698. They expect to exceed the 100,000 figure this year. It must be remembered that Pioneer, and nearly all of the other newly certificated feeders, also suffer the necessary handicap of using the Douglas DC-3 as standard equipment. This obsolete old workhorse simply wasn't designed for the kind of routes the feeders are flying. Until our industry's engineers come up with something more adaptable to the operating problems peculiar to the smaller operators than the DC-3, chances are the critics will find plenty to holler about, especially from the financial standpoint.

It is doubtful, however, if there will be any progress along the line of experimentation with new models or the marketing of new airplanes designed specifically for the short haul lines so long as the Civil Aeronautics Board insists on three-year "temporary" certificates. In the first place risk capital doesn't like the idea of going in on such experimental deals where there isn't a chance of getting their money out in case a certificate isn't renewed at the end of the three-year period. Manufacturers certainly are no longer interested in gambling literally millions of dollars on designs for which there may be no market by the time the new model is ready for use. And we don't believe it will be very long before all American air travelers, even those from the smaller communities, are going to demand better service than the operators can give with obsolete airplanes. So it's a vicious circle. Only the Civil Aeronautics Board can break it. Otherwise the vociferous critics of short haul airlines will grow so loud and so powerful the entire hope of providing adequate scheduled air service to scores of smaller communities will fade and die.

It is significant that the oldest certificated feeder airline in the country has just now finished its third year of operation. Pioneer is to be congratulated on its record, which stands available for all critics to observe and study before undermining both public and official government confidence in a struggling and refreshingly new branch of aviation development.

WORTHY CAUSE

THE names of two celebrated pioneers of U. S. aviation were happily linked together last month by a cash donation from one in memory of the other. Sherman M. Fairchild is the donor. His gift is to the independent, non-profit Flight Safety Foundation and will be used to start the Richard Henry Depew, Jr., Memorial Fund for greater safety in private flying.

As most of the readers of this publication already know, Dick Depew, who passed away suddenly last January, was associated with Sherman Fairchild's aviation enterprises for many years. An advocate of safety in private flying, Dick started flying in 1911 at the age of seventeen. He was one of the simon pure pioneers in the flying game with a long list of "firsts" to his credit. His famous statement that he didn't want to be the best pilot in the world, only the oldest, is still oft-repeated on airports and in hangar flying sessions throughout the world. So the memorial is appropriate.

Generous donations for worthy causes as in this case have been rare occasions in the aviation industry during recent years. Perhaps the Sherman Fairchild memorial to Dick Depew will serve as a reminder to all of us that a large measure of aeronautical progress will always depend on this kind of philanthropy. As Jerome Lederer, president of the Flight Safety Foundation, pointed out, the Fairchild gift has created a fund to be used for scientific study, research, experimentation and education in the fields of private aircraft design, equipment and practice which are "too often overlooked because of the more immediately pressing demands of commercial and military aviation."

Airlines fly on *Good Groundwork*

Commercial airline profits are made in the air . . . and good groundwork in the factories and in the hangars means more time between overhauls, less time on the ground.

It's the maintenance man's good groundwork in the hangar that keeps the airliner tuned up to take off on schedule . . . and Sperry's good groundwork in the laboratory and in the factory helps him do his job even better and quicker.

Every piece of Sperry aeronautical equipment is engineered and manufactured to give the maximum of trouble-free hours in the air . . . and for easy accessibility and servicing on the ground at the regular scheduled airline overhaul periods.

To make servicing of Sperry products still easier for the maintenance crew, Sperry conducts special training schools. Here the airlines' key maintenance personnel learn to service Sperry equipment and teach others in its best use . . . all to assure more efficient and more economical operation.

And in the field, Sperry Service Engineers themselves are always on call whenever, wherever service is needed. Most of these men are graduate engineers. Their main job is to help the customer by making sure that his Sperry equipment and its installation give him the best possible service.

Meanwhile, Sperry research and engineering look to their Field Service Engineers and the many Sperry-trained maintenance men among its customers for the vital performance data that help Sperry build new and better aids for aviation.

SPERRY GYROSCOPE COMPANY

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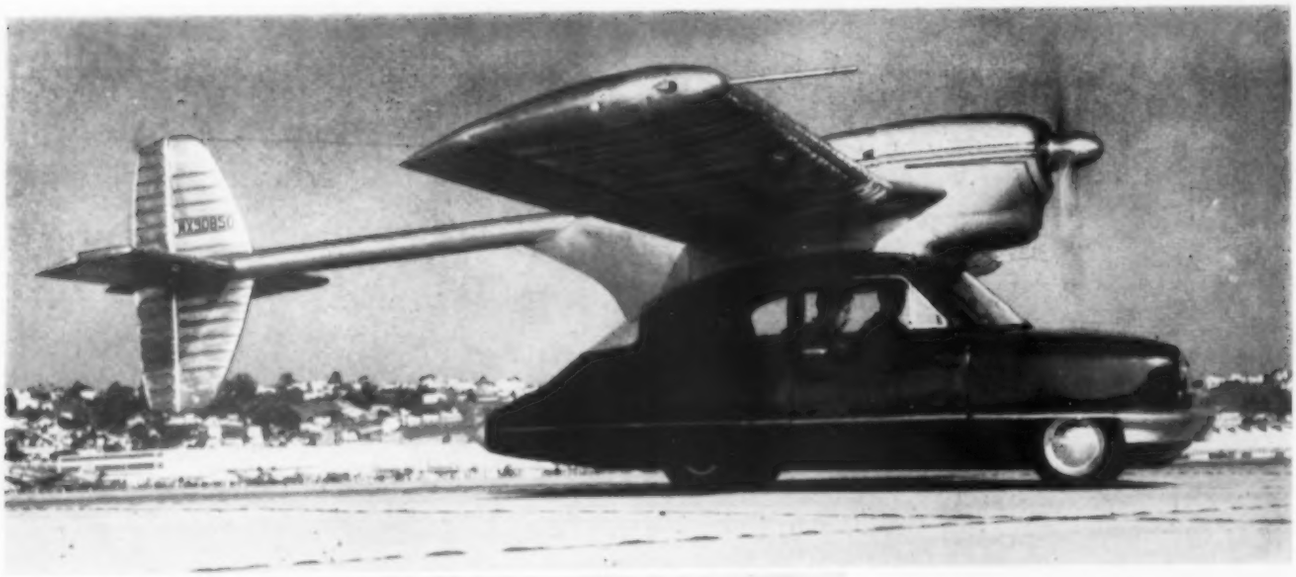


Latest photos show trim mating of flying auto's two components—all-metal flight section, complete with 190-hp. Lycoming engine and "new look" plastic-bodied auto, powered by 26-hp. Crosley engine.

Ross-Pix Photos

THERE'S widespread interest in the idea of perfecting a "flying automobile." Hangar-fliers may say it can't be done but the Convair auto-with-wings has flown many times and its designer, Theodore P. Hall, says he believes he's on the right track. Some day, says Hall, thousands will drive and fly autos with wings which can be readily detached or bolted on, as the need arises.

Watching the strange Convair take off, fly and land, one is forced to exclaim, "There it is—but I still don't believe it." Plenty of runway is used on the take-off. The landing uses not only runway length but width as well. Those who have seen it say the auto wheel-tread is too narrow, especially when a wing dips in a cross-wind. Standing there with mouth open, one wonders whether the idea of combining auto and airplane will ever be perfected.

Both Designer Hall and the company stress that much more work, study and testing will have to be done before any decision can be made concerning production—the day is far off when pop can pack the wife and kiddies into the family car, drive to the airport and there acquire a flight section to soar into the cooler altitudes.

Flight photo shows low nose position in cruise. In center picture, note offset installation of propeller drive shaft, to overcome torque. Narrow tread of car wheels makes landings tricky in top-heavy craft.

Smallness of auto is emphasized in view above. Hole in bumper is for rear-installed Crosley's exhaust. Designer T. P. Hall at right shows how aluminum jacks, weighing only 4.5 lbs. each are carried in wingtips. Picture beneath shows jacks supporting flight section while auto drives away. Wing and auto are secured together by only 3 bolts.

Convair's Flying Auto

While awaiting such a day, you might as well study the accompanying photos made on a recent visit to the Convair factory at San Diego, glance at the following details, and make up your own mind about future prospects.

Hall first became interested in roadable aircraft in 1938, seven years after he joined Consolidated Vultee as an aeronautical engineer. His first flying automobile was successfully tested in 1940 and later the original was sold to a Texas firm, which acquired a ream of publicity with it and then shelved it.

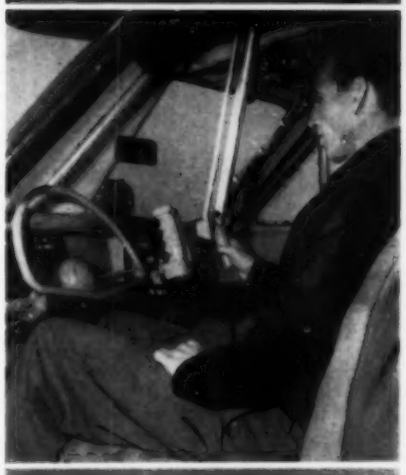
After World War II, Convair unwrapped Hall's second experimental roadable, which is still flying. It differs greatly from the original—chiefly in the use of separate power plants for auto and wing. As it now stands, the flying auto is a trim, beautiful, plastic-bodied car any owner would be proud of. Its engine is a 26-hp. Crosley Cobra, installed in the rear. The 4-place car embodies a steel tube structure in the roof which Hall says will support over six times the weight of the flight section. The auto features hydraulic brakes, fluid drive and heavy duty shock absorbers.

Its flight section has its own power plant, a 190-hp. Lycoming engine. The 34.5-ft. wing, power plant and empennage are all arranged to form a single component, which is secured to the roof of the auto at three attachment points beneath the power plant. One large, seamless aluminum alloy tube is used for the wing spar, another for the tail boom and smaller tubes for empennage spare. All flight surfaces are metal.

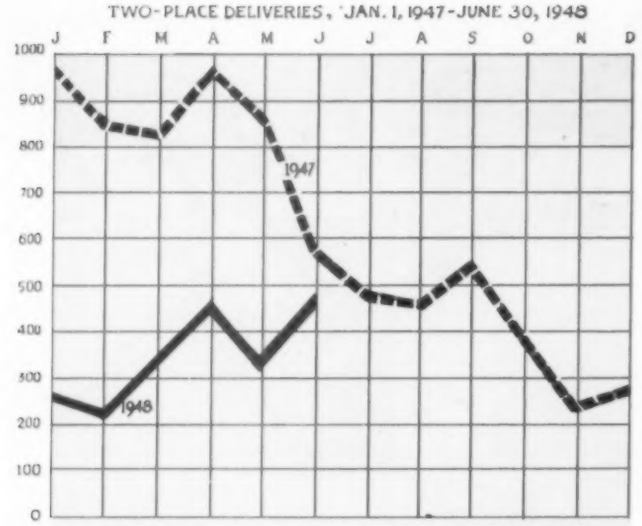
Inside the wing spar are carried long aluminum jacks, which weigh only 4.5 lbs. each and which support the flight section on the ground when the auto is driven out from underneath. The flight section is raised and lowered by the same jack which is used to change a flat tire.

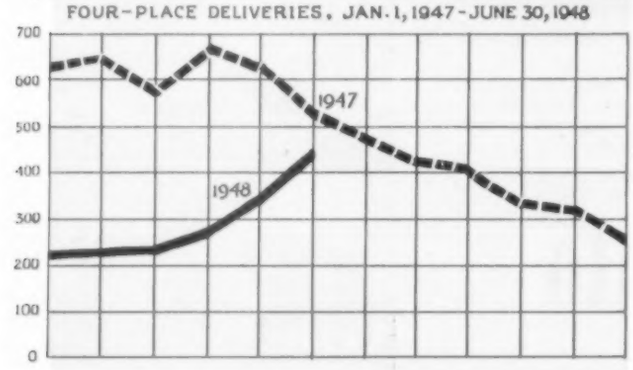
Two sets of controls are in the auto. Flight controls are contained in a column which folds down from the roof of the car.

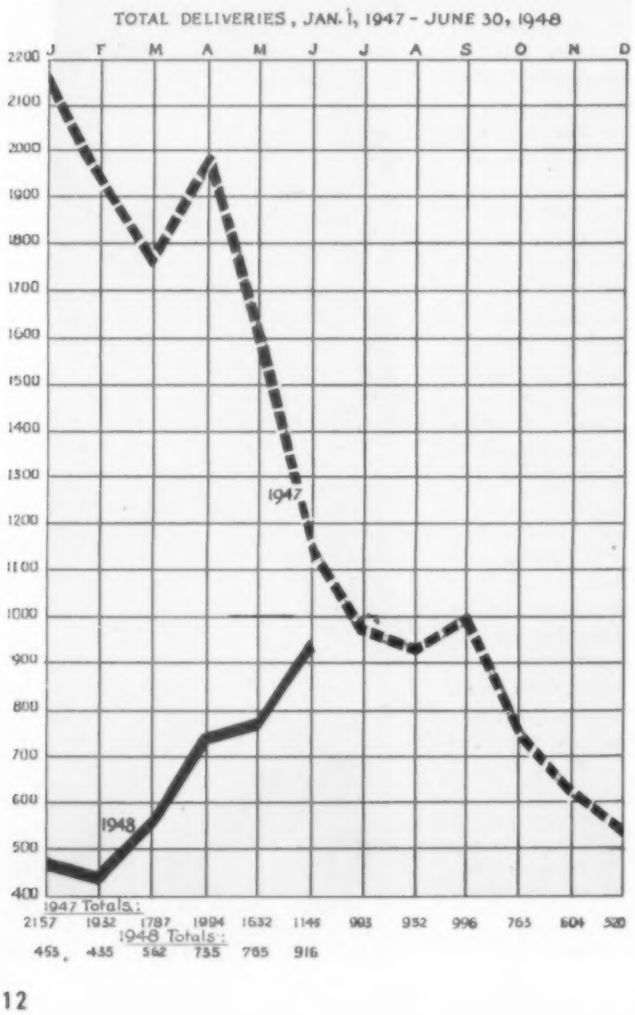
Admittedly a completely experimental project, the Convair flying auto may never reach the market. If your dealer can promise a new auto, better take it. If you're looking for an airplane, Convair would rather sell you a tried-and-proven Stinson Voyager or Flying Station Wagon than make any rash promises about their experimental flying auto. ★ ★ ★



Interior shot at right shows flight control column folded downward from car top. Bottom picture details tubular empennage boom and rear of engine nacelle, with exhaust tubes resembling those on Convair 240 airliner.







BETTER PLANES —MORE BUSINESS

HERALDING better days ahead, the personal aircraft industry's mid-1948 recovery from the 1946-47 market breakdown offers renewed hopes for better airplanes, better merchandising and significant benefits to private flying in general from stable, prosperous operations.

Progress has been made. For seventeen months the industry suffered as losses accumulated from postwar saturation of the market. Then last February, with demand for new planes at its lowest ebb in eight years, the bottom was reached. Some observers expected consumer demand to level off at the bottom. But in June it was twice as great as in February. Seasonal trends and weather factors were exceeded as sales mounted. Accompanying charts trace deliveries of new planes over an eighteen-month period.

Current deliveries, which are at an annual rate of 7,732 new planes, have surpassed the volume of 1940 and 1941 (when CPT was a major factor) deliveries, which totaled 6,562 and 6,629 respectively. The personal plane industry was slipping to lower levels when consumer demand halted the postwar slump last Spring. It is now recovering on solid ground.

Behind recovery and warranting a more optimistic outlook now than was heretofore possible are several important developments. The most important came when the public concentrated their purchasing on the better models available, just as existing owners began to show preference for better airports and better servicing. The manufacturer or airport or operator who couldn't produce what the consumer wanted soon ran out of business. As a result personal planes and service have been consistently improved.

Thus progress has been made on a practical basis. It has not been an easy transition. As for the manufacturers, those who accepted the challenge to improve their products risked heavy investments in developmental work and merchandising, slashed waste and extravagances from their overhead and worked harder than ever for survival. Others were unable to make the grade. Some have yet to survive. The same applies to airports and operators. In the process the customer is getting more for his money.

That major improvements were essential is proved by continued improvement of demand for new models. This applies to 2-place improvements as well as to the recently-marketed 4-place "family" airplanes. Over 40 per cent of 1948 four-place sales are being made by builders who had no 4-place designs or hardly any 4-place volume last year. It is true that most of these sales have been to operators and dealers and that a more realistic test of the "outside" market is yet to come. But operators and dealers are still a major market for personal airplanes and will continue to be; their acceptance of new models is an indication of public acceptance, which in many cases follows the preferences of operators, especially in higher-priced aircraft. Better airplanes are being built but they require more effective merchandising as volume increases and competition is sharpened. As the process continues, continued improvements will find wider acceptance of personal flying. That such is possible has never been questioned. The current outlook is encouraging only because the record of mid-1948 recovery proves that it is being done—successfully.

★ ★ ★

Poison For Cotton Pests

Research lags behind the use of airplanes in agricultural pest control, with spray now favored over dusting

By E. W. DUNNAM
U. S. Experiment Station, Stoneville, Miss.

INVESTIGATIONS relating to the use of insecticides for the control of cotton insects have been conducted in the United States for at least 75 years. During the first 40 years paris green and various other similar toxic materials containing arsenic and copper were used extensively for the control of the bollworm and the cotton leafworm.

With the advent of the boll weevil the interest in insecticide investigations was greatly increased. It was soon learned that insecticides applied as dusts were more effective against the boll weevil than those applied as sprays. This led to the development of arsenate of lead in dust form. Then it was found that a special form of calcium arsenate dust was even more effective against the boll weevil. Within a few years thousands of tons of calcium arsenate were being used annually for boll weevil control and two dozen companies were manufacturing it. Calcium arsenate was not only effective against the boll weevil, but was also used extensively in the control of the cotton leafworm, bollworm, and other insects attacking cotton.

For the past 20 years sulphur has ranked second to calcium arsenate among the insecticides used for the control of cotton pests. It has been used particularly in Texas and other Southwestern States for the control of red spider mites, the cotton fleahopper, tarnished plant bug, and some of the other sucking insects.

Nicotine has been used most generally for the control of the cotton aphid, although rotenone has at times been effectively used for this purpose. Lead arsenate, basic copper arsenate, and cryolite have, in turn, been found to be effective for use against the bollworm, and each of them has at times been used extensively.

Synthetic Organic Insecticides

DDT was first tested against cotton insects in 1943. It was soon learned that this material was not effective in the control of the boll weevil and cotton leafworm. It also became apparent early that use of DDT makes conditions favorable for the increase of cotton aphid and red spider mite infestations by causing great reductions in the population of their natural enemies. However, DDT was found to be more effective for the control of the bollworm and pink bollworm than any of the insecticides that had previously been tested. In 1944, DDT was also found to be effective when used on cotton for control of the cotton fleahopper, tarnished plant bug, and several other mirids, and fairly effective against several species of stink bugs, the onion thrips, tobacco thrips, and beet armyworm.

Benzene hexachloride was first tested against cotton insects in 1945 and was found to be effective against the boll weevil, cotton aphid, and cotton leafworm, three important pests of cotton that are not controlled by DDT. More extensive tests conducted during 1946 confirmed the effectiveness of this material against the boll weevil, cotton aphid and cotton leafworm, and also indicated that it is effective against the cotton fleahopper, tarnished plant bug, rapid plant bug, thrips, loopers, southern green stink bug, garden webworm, and fall armyworm.

It failed to control the bollworm and red spider mite, and in some experiments it actually made conditions favorable for a great increase in the numbers of these pests. Investigations conducted during 1947 indicate that benzene hexachloride has great promise for the control of most of the important pests of cotton; unfortunately, like DDT, it kills many beneficial insects.

DDT is effective against the bollworm but not effective against the boll weevil, cotton aphid, and cotton leafworm. On the other hand, benzene hexachloride is effective against the boll weevil, cotton aphid, and cotton leafworm, but not against the bollworm. Results of experiments conducted during 1946 and 1947 indicate that mixtures of these two organic insecticides are of great value for use in the control of these four important pests of cotton.

Experimentally, a mixture containing 5 per cent of DDT and 3 per cent of gamma benzene hexachloride appears to be the best all-purpose insecticide that has been developed for cotton insect control. Extensive use of mixtures of these materials may create problems of management, crop rotation, land use, etc.

Much research must be done to secure answers on these matters and to determine rates and methods of application before unqualified recommendation can be made for their use.

Another of the new organic insecticides being tested, a chlorinated camphene, also shows promise as an effective insecticide for the control of most cotton pests. In tests conducted in 1946 and 1947 it has given fairly adequate control of the boll weevil, cotton leafworm, cotton aphid, bollworm, cotton fleahopper, southern green stink bug, garden webworm, cabbage looper, and other pests that attack cotton. It is too early to predict just what the possibilities may be with this material, nor have the rate, timing and method of application been determined.

Chlordane is still another organic insecticide that has given promising results in tests against some cotton insects and its possibilities must be considered in connection with investigations of other insecticides for the control of cotton insects.

In all probability many more new organic insecticides that may have possibilities in connection with cotton insect control will eventually be developed. All of them should be thoroughly tested to determine their possible effectiveness against each of the important cotton pests and to determine the formulations that will give the best results. There is already evidence to indicate that mixtures of two or more insecticides will give outstanding results. The use of sulphur as a diluent for use with those insecticides that are not effective against red spider mites on cotton must be given consideration as this is one of the most effective materials known for their control.

Application Of Insecticides

There is a great variation in the equipment and methods used for applying insecticides to cotton. Many

(Continued on page 25)

Front view shows sloping cowling for 165-hp. Continental engine. Note landing lights beneath prop spinner, location of wheels forward of wing leading edge, handy steps on each strut.

—(Luscombe Photo by Tom W. Collins.)

FLYING THE BIG LUSCOMBE

Outstanding climb ability, roomy cabin and ingenious construction distinguish the new Silvaire Sedan, designed for load-carrying

FLYING the four newly-marketed family lightplanes as the basis for articles, we find all have several features in common. For example, all were designed around maximum cabin roominess and comfort with the exception of one, which is a four-seat version of an existing model having less capacity. All were designed to sell at lowest possible prices. All were designed for the average pilot, who has neither the inclination nor the time to develop expert technique, with a view of simplicity and elimination of gadgetry. None was designed around high speed as a top consideration.

Each of the four newly-marketed family planes has its own distinctive features, however. We have just completed a cross-country trip-test of the new 4-place Luscombe Silvaire Sedan, which probably is more distinctive than any and which is actually "unconventional" in some respects.

Many Innovations

Luscombe began its Silvaire Sedan project on May 26, 1946. Five months later, the prototype made its first flight on November 9. Throughout this and subsequent development, Luscombe engineers emphasized low-cost construction, maximum cabin roominess and visibility, ease of flying from small, rough fields and high load-carrying ability. In holding costs down, ingenious construction features were created and the airplane represents a notable achievement in simplified all-metal construction. Innovations include the first sheet-metal engine mount in personal airplanes and the use of a magnesium leading edge in the wing. Both reduce weight and contribute significant production economies. The magnesium leading edge, incidentally, is of greater thickness than aluminum sheet and eliminates the use of leading edge ribs or stiffeners.

Factory Specifications

Here are factory specifications and performance data on the standard Luscombe Silvaire Sedan:

Price: $6,995 FAF; type, 4-place, all-metal, high-wing, cabin monoplane with fixed gear and tailwheel; power plant, Continental E-165 rated at 165 hp. at 2,050 rpm. and at 120 hp. at 1,850 rpm.; fuel 42 gals.; range, over 500 miles; propeller, fixed-pitch wooden Sensenich; cruising speed, 130 mph.; maximum speed, over 140 mph.; stalling speed, 55 mph. with flaps, 58 mph. without flaps; rate of climb, 900 fpm. at sea level and gross weight; service ceiling, 17,000 ft.; take-off run, 800 ft.; landing roll, 500 ft.; span, 38 ft.; length, 23 ft. 6 in.; height, 6 ft. 10 in.; gross weight 2,280 lbs.; empty weight, 1,340 lbs.; useful load, 940 lbs.; baggage allowance, 100 lbs. (cargo version, stripped of furnishings, has 1,020-lb. useful load and cargo allowance of 600 lbs. with pilot and full tanks of gas).

By BOB WEMPLE and TOM ASHLEY

In the Air

It was hot the day we began our cross-country, with Bob Wemple doing the flying. Picking up a friend in another city, the three of us headed for South Louisiana's marshes and some bass fishing. We found the Luscombe's roomy cabin, largest of any postwar 4-place airplane, ideal with plenty of space. Cabin dimensions measure 52.5 in. maximum cabin height, 45.25 in. maximum cabin width and 6 cu. ft. of baggage space beneath the rear seat. In addition, there is a very commodious hat throw behind the rear seat.

Cool air was our first thought as we took off. The Luscombe's best climbing speed was found to be 85 mph. We topped 2,000 ft. of climb in

2 minutes for a rate slightly better than 1,000 fpm. Our tanks contained about 30 gals. and we had about 40 lbs. of fishing gear and clothing beneath the seat. In less than 15 minutes we had leveled off at 9,000 ft. A nice feature in the Luscombe is its wheel-style elevator trim tab, located on the instrument panel and which operates positively and easily. The airplane is readily trimmed for cruise. In the smoothness of the air at altitude, our only retrimming was to adjust for gas consumption.

Cruised down to a throttle setting of between 1,850 and 1,900 rpm., the Luscombe indicated 105 mph. at 9,000 ft. Outside air temperature was 75 degrees. That figures out to be 126 mph. For the first hour and a half we had a headwind of 10 mph. As the heat of the day increased, we eased up to 10,000 ft. despite a 23-mile headwind and kept grinding, feeling slightly better with all that space between us and the tree-matted terrain in the vast Big Thicket of East Texas and West Louisiana.

Cabin Luxury

Visibility in the Sedan is outstanding. It has 3,716 sq. in. of window space including a rear window. Seating is well below the level of the wing and the nose cowling drops sharply away, indicating a gliding attitude in level flight. There are five fresh air ventilators in the cabin—one in the firewall beneath the panel and one overhead ventilator for each occupant. Front-seat ventilators are airline type, with ball joints, but they cannot be aimed below the occupant's head. Rear seat ventilators are fancy and chrome-plated, with push-pull control.

Luxury is the word for the Silvaire Sedan's interior. An idea of just how far Luscombe went in giving their big model ample plush can be gained from the fact that the airplane has about 60 lbs. of thickly-cushioned foam rubber and Nucraft seat pads and backs, all tastefully upholstered with pin-stripe woolen material. It also has chromium-plated Cadillac ash receivers in the rear, each with an individual cigar lighter. Rear-seat passengers ride slightly higher than front seat occupants and have generous room all around, including leg room. Both front seats have folding backs and can be adjusted for rearward or forward positions. They also have individual map pockets, located handily on the side. Both doors have windows which open. The Sedan instrument panel groups all flight instruments in an attractive upper panel and all engine instruments and controls in a long, narrow strip running across the bottom of the panel. The engine group actually was adapted from the Studebaker auto panel. We especially liked the mixture control, which has a push-button lock, the push-pull parking brake and an auto-type starter foot-button on the firewall.

After leaving the Big Thicket, rice fields replaced trees on the terrain below. Rice is cultivated in standing water and as we passed directly overhead we could see water everywhere below in green fields which had appeared to be as inviting to the airman as a wheat field. We waited until the Jennings, Louisiana, airport was in sight before letting down. George Houston of Zigler Flying Service, large-scale dusting and spraying operators with the largest aircraft shop between New Orleans and Houston, was waiting as we landed and we picked him up to take us the remaining 7 miles or so to our destination—a beautiful little turf field on Lake Arthur where we could park the airplane only a few steps from the door of the Zigler resort house where we would spend the night. From the air the field looked like somebody's backyard, but we braked to a stop with ample room after making a wheel landing. The field has only 1,600 ft. of length and high trees surround it.

Wheel Landings Favored

Lack of rain had the South Louisiana lakes at unprecedented low levels and salt water was entering some of them in the area, so that fishing was out. As a result, our night was devoted to a seafood restaurant dinner, some Sazeracs and hangar flying the Silvaire Sedan. There was one point which needed discussion—landings.

Interior features foam rubber cushions, adjustable shades for skylight windows and Polaroid sun visors, airline-type ventilators and windows in each door which can be opened. Wheels are wrapped in cord. Elevator trim control is next to throttle on panel.
(Luscombe Photo by Tom W. Collins.)

While doing air work in the 4-place, we noticed a slight, recurring pitching in the stall. Gentle enough and with remarkable aileron control, the nose nevertheless revealed its heaviness. Consequently we found wheel landings preferable at all times. In practice we found the best technique to be an approach at 80 mph.; with full flaps, holding the glide (that nose cowling makes it look very steep) much closer than usual to the ground before flaring out, then gradually breaking the glide and holding level-flight attitude until the wheels touch at 65 mph., then applying forward pressure on the wheel. This forward pressure is to counteract the airplane's tendency to leave the ground again as the tail is lowered. Once you're on the wheels and are holding them on, the flaps should be dumped to lower the tail if use of the hydraulic brakes is desired to shorten the ground run.

We liked many features of the big Luscombe, including its stability in flight. With rudder or wheel alone, for example, well-coordinated turns are assured by the spring-connected controls.

In rough air the Sedan's feeling of stability is even more pronounced. It is one of the most comfortable personal airplanes we have ever flown and with its high rate of climb it offers more altitude comforts, which can be reached quickly and easily, than most low-powered personal planes. There are other advantages of the Luscombe's adequate power. With 165 hp. actually available from its Continental, it is in every sense a 4-place model.

The Luscombe's large hydraulic flaps are very effective in negotiating short approaches over obstacles. With full flaps the Silvaire Sedan's nose can be pointed steeply downward without building up excessive speed. However, the control lever, located on the floor, is difficult to reach and operate, especially in dumping flaps.

On our return flight, more speed checks verified the Sedan's performance on the outgoing flight—at 8,000 ft. it is a 125-mph. airplane with a throttle setting of 1,850 to 1,900 rpm. We do not have a power curve on the Continental E-165 but the factory advertises that it develops 120 hp. at 1,850 on the Sedan.

Considered from the sidelines, the Silvaire Sedan incorporates many of the improvements personal airplane owners have been seeking. Its simplicity is impressive with but one exception—its landing characteristics. ★★★

New Navy shipboard fighters include twin-jet McDonnell F2H Banshee (left above) in 600-mph. class and having over 9,000-fpm. climb. Wings fold. New Douglas AD-1 (upper right) combines torpedo attack with dive bombing and carries rockets and cannon. Needle-nosed craft at left is experimental Navy Skyrocket supersonic research plane by Douglas.

More Planes For Naval Aviation

New-look Chance Vought F6U Pirate (above, left) has after-burner in which jet exhaust is re-ignited for additional speed in emergency; Pirate is in 500-mph. category. Martin AM-1 Mauler, with trailing-edge dive brakes, has 3,000-hp. P. & W. Major engine, is torpedo-dive bomber-attack plane. Newest attack plane is Grumman AF-1 (bottom), still on confidential list but intended for special anti-submarine duties from carriers.

DON'T discount Naval aviation as 70-group Air Force procurement, atomic bomb and strategic air warfare talk gains momentum. Final appropriations in Congress last Spring failed to meet Navy planning but procurement funds—$753,000,000 in contract authority and cash for new aircraft during 1949—are not the only source of air strength for the admirals. They have plans for heavier withdrawals from storage pools and the Navy will aim for a strength as high as 14,500 planes during 1949. It now operates about 10,900 planes.

The air Navy next year might include 3,300 combat planes in the Regular Navy, 2,700 planes, mostly combat types, in the Naval Air Reserve, 2,000 planes utilized in new-pilot training, 2,700 aircraft employed in direct support, utility functions and research and development, and 3,800 planes undergoing overhaul or modification. Eighty-eight per cent of all naval aircraft now on hand were produced in 1945 or earlier. New-plane procurement will be 95 per cent for combat types, of which 52 per cent will be jet-propelled. But the planes themselves—1,165 of them—will not be delivered until fiscal 1950.

According to Navy officials, this number of new planes is inadequate for proper support of a Naval aviation program of 14,500 planes, which requires a yearly input of 3,300 replacements. The Navy hopes to make up the deficiency by heavier withdrawals from storage pools of old-type planes and by extending the service life of all planes. These withdrawals from the last remaining surpluses and war-built reserves will put a definite end to the Navy's "living off the shelf," it is explained. What then? New appeals for funds for new planes.

New Planes on Order

As matters now stand, Naval aviation procurement of new planes for fiscal 1949 can be broken down by model, manufacturer and quantity as follows:

Fighters: 179 McDonnell F2H, 317 Grumman F9F, 28 Douglas F3D (still on secret list), 33 Chance Vought F6U and 19 Chance Vought F7U (still on secret list); total, 576 fighters.

Attack: 356 Douglas AD, 23 Grum-

Grumman F9F-2 Panther (above) takes either P. & W.-built Rolls Royce Nene or Allison J-33 jet engine. Patrol bombers (right) are Lockheed P2V Neptunes.

man AF, 47 Martin AM; total, 426 attack. Patrol, 82 Lockheed P2V.

Transport: 8 Fairchild R4Q (Packets), 6 Grumman JR2F and 2 transports of undetermined make and model; total, 16 transports.

Helicopters: 19 Sikorsky HJS and 18 Sikorsky HO3S; total, 37 helicopters.

These, plus 28 additional aircraft of an undetermined type, make up a grand total of 1,165 new planes, authorized for procurement by the Secretary of Defense from Congressional appropriations.

At present, the Navy has approximately 2,500 combat aircraft in the Fleet. They comprise 13 air groups operating from 11 Fleet carriers. If Navy plans are carried out, 11 additional air groups and one additional Fleet carrier will be added during fiscal 1949. There are now only two replacement carrier air groups, one in each ocean. A Navy spokesman stated recently, "if war were to come, we would be obliged to fight our carrier groups until they were below operating strength. Then we would have to withdraw — not to replace them, but to wait for new planes to be built and new groups to be trained."

Such is the current status of Naval aviation as new planes on order, fewer than the number requested, are awaited for delivery in 1950. Meanwhile the withdrawal of 2,400 or more World War II aircraft from fast-dwindling storage reserves gains momentum, leaving less than 600 in moth balls.

★ ★ ★

Sikorsky HO3S, similar to commercial model, has 450-hp. P. & W. engine, is widely used in fleets. Newest Navy 'copter is Sikorsky HJS-1 with 500-hp. Continental engine.

Plane Talk and Plane People

By GEORGE E. HADDAWAY

State Enforcement of Air Safety

AN interesting item in the official bulletin of the Ohio Aviation Board for July 20 reports the following convictions for reckless flying:

Glen D. Cross, 24 of Carrollton, was fined $24 and costs in municipal court for "flying an airplane within 100 feet of housetops." David Watkins of Radnor was fined $200 and costs for "flying too low over the village of Waldo in Southern Marion County." Municipal Judge Don Williamson suspended $150 of the fine. Edgar Gentry, 25, Osborn, veteran, was arrested at Raven Rock Airport for "stunting over the eastern section of Portsmouth, flying as low as 250 feet." Two student pilots were fined $200 and costs by Municipal Judge James H. DeWeese in Piqua. The two pilots, Paul A. Erwin and Duane Page, cracked up in a practice plane on May 9th.

The item concludes with this commentary: "These buzz-boys just can't seem to get the idea . . . if the angels don't get them, the law will. Perhaps a few more arrests and fines will convince these playful pilots that the legislature meant business when it passed a law against reckless operation of aircraft, and the judges of Ohio's courts are prepared to carry it out."

In the same mail that brought the bulletin from Ohio we received an interesting booklet from the Tennessee Bureau of Aeronautics entitled "Air Safety Enforcement Manual," a guide to state, county and municipal officers in the enforcement of state laws regarding all phases of air safety. In Tennessee state, county and municipal police have the duty and responsibility to investigate all accidents involving aircraft, to enforce all regulations and laws dealing with aeronautics and to report fully to the CAA all infractions of regulations where Federal action appears advisable. The Tennessee manual will go a long way to educate the various local law enforcement agencies so that ignorant "jaypee justice" will not be hung on unfortunate airmen but that intelligent enforcement of reckless flying laws will obtain. It's a progressive step and the Tennessee Bureau, under the direction of Herbert Fox, is to be commended for an excellent approach to the problem of local enforcement.

Ohio and Tennessee are just two of many states who are through putting up with the buzz-boys. Pennsylvania has long been a leader in the move to stop reckless flying. In fact, the chairman of the Safety and Enforcement Committee, National Association of State Aviation Officials, is the Pennsylvania Aeronautics Commission Director, William L. Anderson. The NASAO objective is to establish a uniform system of enforcement throughout the states with full cooperation with the CAA. Such a program will be a tough one to achieve but the goal of uniformity is worth all the time and effort required to get the job done. The CAA and CAB simply do not have the budget or personnel to police this business. However, with a complete interchange of information between the several states and the Federal agency, especially so that there will be no duplication of effort or multiple actions against any one violator, buzzing and reckless flying can be brought under control quickly and sensibly.

Not all states are set up to cooperate in such a program. Some interim formula will have to be worked out between municipal and county governments with local or nearby regional offices of the CAA. Otherwise reckless flying will continue to darken the aviation skies wherever it isn't curbed. And unless enforcement is carried on intelligently as it is under the sponsorship and supervision of state commissions such as in Pennsylvania, Tennessee, and Ohio, it might be worse than none at all. You old timers who pioneered the automobile remember well the "jaypee" courts. That type of local roadside justice can be applied to the airplane if we don't watch out.

More On Places To Go

JOHN G. THOMAS, instructor for the Regan Flying Service of Shawnee, Oklahoma, backs up this publication's conviction that one of the biggest jobs in non-scheduled flying is to keep pilots and plane owners going some place. John has just sent us a picture of 20 Shawnee pilots who recently went on a mass cross-country flight to Miami, Oklahoma, where they were guests of the huge Goodrich Rubber plant. Another cross-country voyage, with 32 airplanes and 74 people registered to go, was scheduled July 27 for the Cessna Aircraft Company plant at Wichita, Kansas. An August cross-country has been set up for an overnight fishing tour to Lake Texoma.

The large number who signed up for the Cessna trip reveals the overwhelming enthusiasm Thomas and Fred Reese of the Regan Flying Service hope for when they decided to sponsor the flights. They believe that their local airmen are now beginning to appreciate the many interesting places which exist right in their own state in addition to appreciating the reasonable range of modern light airplanes. And although it is educational as well as fun for the present airplane owner and experienced pilots of the community to get together and go places, the instructors believe that the greatest benefit of all accrues to the student pilots, who are learning the real value of airplanes by abandoning the old merry-go-round fly-

SOMEWHERE TO GO, SOMETHING TO DO: These Shawnee, Oklahoma, fliers make cross-country flights to see the sights, such as the Cessna factory, a rubber factory in Oklahoma, an overnight fishing flight. Regan Flying Service sponsors the tours to stimulate interest. In the group above are Mr. and Mrs. Bob Swink, Dr. C. C. Young, E. A. Wright, Jerry Regan, N. L. Lewis, H. A. Youts, Bob Hall, J. B. Boykin, Bill Long, C. E. Long, Newt Barrett, Jack Spencer, W. Penix, R. M. McPherson, J. G. Thomas, B. M. Bennett, and H. L. Conley.

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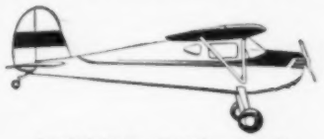

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Practical 2-place, cross-country planes at light training plane prices! All metal structure. Patented Safety Landing Gear. Many comfort and safety "extras." The 140 has a 90 H. P. engine and cruises at nicely over 105 m.p.h. The 120 has an 85 H. P. engine and cruises at over 100 m.p.h. Both have ranges of more than 450 miles.

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These planes are luxurious 4-5 place personal or company *airliners* . . . with airline-type engines, Hamilton Standard Constant Speed Propellers, every comfort and safety feature! The 195 has a 300 H. P. Jacobs Engine and cruises at well over 165 m.p.h. The 190 has a 240 H. P. Continental Engine and cruises at over 160 m.p.h. Both have ranges of more than 700 miles.

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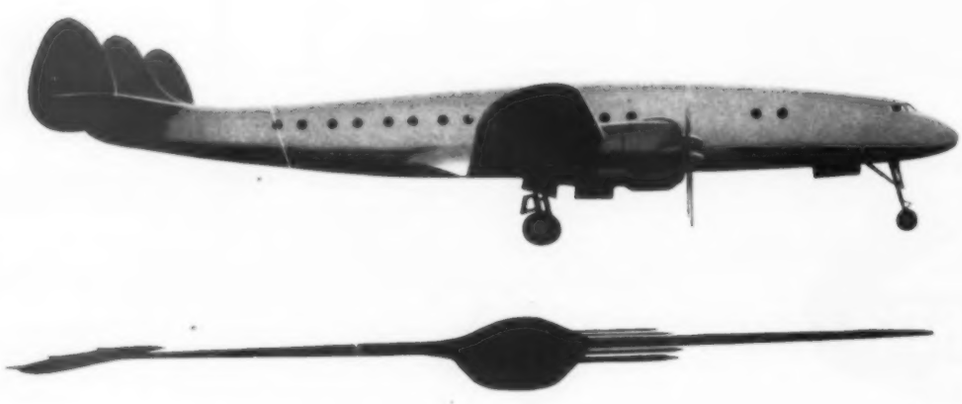

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ing at the airport and striking out for greener pastures.

Although Thomas didn't mention it we figure the program is profitable to the operator since it means more rental hours on his airplanes, more gas, oil, accessories and maintenance for ships based on his airport. All you operators who are sitting around crying about how bad business is and how mean the VA is for not approving students for the GI flight training program might try some new sources of business stimulation like the weekly air cruise idea which is proving so successful in Shawnee. Another point: Many operators will not adopt the new cross-country primary flight training curricula because they don't want their airplanes going cross-country. It's high time they learned that cross-country hours on their equipment makes the cash register jingle while the hours his airplanes sit in the hangar simply increase the overhead.

Parachutes for Transports?

DURING the past few years we have corresponded with Henry W. Comstock, a representative of the Irving Air Chute Company who is, in our opinion, the principal proponent of parachutes in passenger transports. Although we do not agree with all of his views, we consider Mr. Comstock an authority on the subject and have obtained a resume of his opinions so that his "case for parachutes" can be reviewed by the reader who can form his own opinions. Most aviation operators and pilots with whom we have discussed this subject are not "against" parachutes but they do doubt the effectiveness of parachutes in all emergencies. They believe that a forced landing, except in most unusual cases of last-resort abandonment, is less hazardous than a jump (people don't hear of safely-made forced landings—only the fatal accidents are discussed, creating a misleading impression among laymen that aviation emergencies are all fatal or injurious). Aviation safety is most effectively served by accident prevention, not escape. The Editors believe that parachute proponents should not be denied the right to express logical views based on fact and study. We believe the following review by Mr. Comstock fills that bill and that his comment might lead to something constructive:

> "Eight persons who bailed out of a stricken Fortress ten minutes before it crashed and exploded in the Sinai desert . . . arrived here today unscratched and even unshaken by their experiences. One of those who parachuted from 4,000 feet was the young, frail looking wife of a United States Naval Lieutenant . . . The pilot gave the order to bail out when he had but one engine left. One of the passengers . . . organized the (other) passengers and jumped first to show how it was done. It was his first jump . . ."

The above is from a news item in the New York Times. It is the kind of news story that is received from abroad from time to time where various transport planes carry parachutes. But you never read that kind of a news story when a domestic airliner crashes. Domestic airlines don't carry parachutes.

Since the time when parachutes were first used aboard aircraft, they have saved more than 35,000 lives. Those saved include both men and women, young and old, and even some on their first flights. Many prominent citizens are alive today because of parachutes. Yet in spite of this overwhelming record, the airlines are not using parachutes. Why?

As to why 'chutes are not feasible, various reasons are given by the CAB, Air Transport Association, President's Air Safety Board, unofficial spokesmen for the airlines and others. These "reasons" include such things as psychological effect on passengers, loss in payload, cost of 'chutes, inexperience of passengers, danger of injury to passengers who jump, difficulty in locating passengers who bail out, altitude, speed, temperature, lack of time to bail out, etc. For example, the CAB in its report on the matter states that with "few exceptions" parachutes wouldn't have helped. The answer to that is that in those "few exceptions" people were lost for lack of 'chutes. Other noteworthy "arguments" in the CAB report, and they are quite similar to those presented by the Air Transport Association and the President's Special Board of Inquiry on Air Safety, are:

Argument: People must have "jump discipline" or they won't jump. Answer: Actual case histories such as that mentioned in the opening news story from the Times proves this is not so. People jump from burning buildings. As a matter of fact, people have jumped from burning planes **without** 'chutes when the heat became too intense.

Argument: Trained personnel often get hurt on landing. Therefore, airline passengers would get **hurt**. Answer: Wouldn't you rather be in a cast than a casket? Also, the "often" should be deleted.

Argument: It's impossible to teach passengers to jump, etc. Answer: They'll jump when their lives are at stake and they'll do a workmanlike job of it as records prove. We have women who jumped and they weren't all air women. The majority were not. We even have one pregnant woman who parachuted to safety and her child was born normally five months later.

Thus the "arguments" go. They admit that some "few exceptions" would be saved.

So the airlines continue to fly without parachutes. And in a number of

(Continued on page 24)

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Span, 35 feet; overall length, 20 feet; overall height, 6 feet 3 inches; maximum cabin height, 38¾ inches; maximum cabin width, 39 inches; baggage compartment, 5.2 cubic feet; door size, 27x29 inches.

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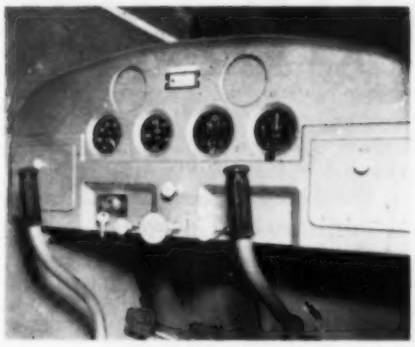

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AIRviews

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To handle this large flow of spare parts quickly and efficiently, Douglas maintains a capable spare parts organization of 400 people. Each month they speed deliveries of some 20,000 items weighing approximately 650,000 pounds. And to facilitate operations, modern tabulating methods were recently introduced throughout the Douglas spare parts division.

Also, increasing use is constantly being made of air freight in the dispatching of spare parts. Today 60 to 75 per cent of all commercial spare parts are sent by air.

We here at Douglas realize full well that only an airplane ready and able to fly is a profitable or useful airplane. That is why particular attention is being paid to supplying correct spare parts in the shortest possible time. We will appreciate receiving from you at any time suggestions for the improvement of our spare parts service.

Donald W. Douglas

PRESIDENT
DOUGLAS AIRCRAFT COMPANY, INC.
SANTA MONICA, CALIFORNIA

Distributors Offer Savings To Airlines For Supplies

By GEORGE W. JALONICK
Vice President — Sales,
Southwest Airmotive Company

As a distributor, I recommend that distributors be given a break in selling to the airlines. They and the manufacturers both can save considerable money under this plan. And by offering worthwhile service as well as savings, the distributors should be able to earn new sources of profitable revenue.

The airlines should be impressed by the fact that distributors have helped fixed-base operators stay in business, as was brought out in the recent Harvard report. Believe me, that's quite an achievement in 1947-48. Our carrying the burdens of credit, inventory, paper work and personnel has meant the difference between life and death to many a struggling operator in private flying.

Savings Demonstrated

We propose to offer the same savings to the airlines, with related savings to the factory. In fact we have proved that it can be done.

Several months ago we completed arrangements whereby we represent Scintilla Magneto Division of Bendix Aviation Corp., in that firm's dealings with three major airlines. An official of one of these lines, after having seen our program in action, tells us that through it he expects to reduce his Scintilla inventory by 66 ⅔ percent. Think of what that means—less taxes, insurance, invested money and interest on that invested money—more warehouse space released for other uses—savings in paper work and in personnel in such departments as stores and purchasing.

This same airline official believes that similar reductions in inventory can be made with certain other lines. Experience will dictate what those lines can and should be. At the present time, he has 250 different sources of supply. We intend to reduce that number materially.

This sort of airline-distributor teamwork will not pan out if the distributor is merely a commission-grabbing

(Continued on page 30)

PLANE TALK

(Continued from page 21)

crashes, reports show there was plenty of time, good altitude and other suitable conditions under which to bail out the passengers. The pilot finds his real and final trouble in attempting to land with defective equipment. At Bryce Canyon last fall, for example, the plane was reported in trouble by the pilot for about thirteen minutes before the crash, fatal to more than 50. Many, if not all, could probably have been parachuted in this disaster.

A few weeks ago the press carried an item about 19 people who were successfully bailed out of a Flying Fortress in North Africa. This item received only minor attention by the newspapers in which it appeared probably because it occurred abroad and no prominent individuals happened to be involved. So the public was not impressively informed, and generally isn't, about the accomplishments of parachutes.

But the fact remains that in nearly all instances where passengers have had 'chutes in a serious emergency, they have shown amazing ability to use them. They don't appear to have been bothered greatly by psychological effects, inexperience, speed, altitude, temperature, pay load, terrain or what have you. They have merely buckled on their 'chutes and gotten out in a hurry. And in most cases they haven't been injured and have been pretty good about "getting themselves found."

Another "argument" frequently presented against 'chutes is that they wouldn't help in many types of accidents. It is true that there are crashes such as those occurring during normal take-offs and landings in which chutes couldn't be used. And even under favorable conditions some might be lost. But is that any reason for depriving passengers of the opportunity of parachute escape in disasters aloft where the 'chutes definitely could be used? And suppose only a few or even one or two successfully escaped. Wouldn't their testimony as to what happened be valuable and enlightening to accident investigators?

It is interesting to note that many of our largest corporations and most prominent citizens are installing parachutes in their transport planes. To mention only a few, The Esso Standard Oil Company has equipped its transports. Henry Ford II and George Pew of the Sun Oil Company have put them in their planes. So has Edgar Bergen, Mrs. Timken and other private aircraft owners. The Humble Oil Company, Carter Oil Company, Reynolds Metals Co., Philadelphia Evening Bulletin and scores of nationally known companies either have them or are arranging to have them installed. ★ ★ ★

PEST CONTROL

(Continued from page 13)

farmers still use the same crude methods that were in use 75 years ago. Too little judgment is often used in deciding when to apply insecticides. Some cotton growers apply them simply because their neighbors are doing so. Each cotton field is a separate problem as regards insect control. To obtain most satisfactory results the insecticide applications to individual fields should be based upon careful observations of cotton insect conditions from week to week. Insecticides that will be effective against the particular injurious insects present should be used.

Many types of dusting machines are used by the cotton growers. These include hand guns and saddle guns, operated by a crank turned by hand; traction machines, in which the power for operating the dust mechanism is taken from the traction wheels through chains or gears; power dusters, operated by gasoline engines mounted on platforms and connected with the dusting mechanisms by bolts or shafts; tractor-power dusters, mounted on platforms bolted to the rear of the tractor and receiving their power for operation from the tractor power take-off, and airplanes, converted for carrying and applying dusts. Each different type of dusting machine has its place in cotton insect control. The smaller machines are suitable for use on small acreages. The airplanes and larger types of ground machines are becoming increasingly popular. Use of 2,4-D dust from airplanes is now prohibited by CAA.

Liquid Sprays Effective

Research in the use of the recently developed concentrated sprays may bring about marked changes in the methods of applying insecticides for cotton insect control. Preliminary experiments have indicated that spraying may be more effective than dusting for control of the pink bollworm, cotton leafworm, and several other insects. If some of the newly discovered synthetic organic insecticides now under test should replace sulphur, calcium arsenate, and the other arsenicals for cotton insect control, it is entirely possible that the best results will be obtained by applying them in liquid form. There is need for research to develop dusting and spraying equipment designed particularly for use in cotton fields and for the control of cotton insects.

Soon after calcium arsenate dust came into general use for the control of the boll weevil it became evident that cotton growers could not always depend upon ground dusting machines for making the dust applications at the time they were needed. Extensive investigations were therefore conducted at this Department's field laboratory at Tallulah, La., beginning about 1921, to develop methods of using airplanes for the application of calcium arsenate in dust form. These investigations resulted in the development of dust containers and distributing devices effective for this purpose. The fundamental developments were highly successful and provided the basis for all the airplane dusting work.

Aerial Operations Need Research

Within a short time after the results were available several commercial airplane dusting companies were organized for applying insecticides to cotton. From this small beginning in Louisiana, the use of airplanes for the control of cotton insects extended rapidly to Texas, Mississippi, Arkansas, and other states. The number of companies engaged in this business and the number of airplanes operating increased gradually from year to year. The use of airplanes for applying insecticides was also gradually extended to include the control of many other insects on other crops, as well as for the control of mosquitoes, and the distribution of poison bait for grasshopper control. There are now more than 100 companies engaged in the commercial application of insecticidal dusts and sprays by means of aircraft. These companies are located in more than 20 different states, but chiefly in the cotton-growing states of Arizona, Arkansas, California, Florida, Louisiana, Mississippi, South Carolina, and Texas.

The research relating to the use of aircraft in the control of cotton insects was discontinued about 17 years ago. With the development of new insecticides and the corresponding trend to use them in concentrated form, there is now urgent need for renewing this field of research. This is important to assure that cotton growers obtain full benefit of the progress that has been made in recent years in the development of various types of aircraft and in the important developments that have been made in the equipment used for applying insecticidal dusts and sprays from airplanes.

The use of concentrated sprays and aerosols that are proving to be of great value in other fields of insect control should also be thoroughly investigated in relation to cotton insect control. Most of the research that has been undertaken with regard to methods and equipment for applying insecticides to cotton related to the application of calcium arsenate for boll weevil control. Now many other insecticides are used or in all probability will come into use for the control of insect pests of cotton. The equipment suitable for applying calcium arsenate may not be entirely satisfactory for applying sulphur or some of the newer materials, or mixtures containing sulphur, cryolite, DDT, benzene hexachloride, chlorinated camphene, chlordane, or other insecticides. The comparative merits of airplanes and ground machines, including effectiveness and cost, should be determined in different areas, for the control of different pests and for the application of various insecticides.

Investigations should be conducted with helicopters, as well as with other available types of aircraft, to determine their relative merits and usefulness, under various conditions, for the application as dusts and sprays of different formulations of the various insecticides that show promise in cotton insect control. ★ ★ ★

TEXAS HAS LARGEST BONANZA BUSINESS FLEET since Weatherford Spring Co., Weatherford, recently purchased seven of the Beechcrafts for their field men handling oil well specialty tools. In the photo are Beech Sales Manager Lee Smith, Frank Hover; J. D. Reed, distributor; Manufacturer Walter Beech; Jess E. Hall, Jr., Jess E. Hall, Sr., John A. Hall and Chester R. Hairston, all Weatherford Spring Co. officials.

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AS WE FOUND IT

on Cross-Country Survey

By SLIM and FRANCES KIDWELL

PART IV

AFTER we left Cumberland, Maryland, as commented on last month in these columns, we headed for Connellsville, Pennsylvania, under threatening skies and were soon to learn just how important a system of skyway markers could be.

Pennsylvania

This was mountain flying and about 20 minutes out of Connellsville we encountered heavy rains. They stretched across our route for many miles. We had only one last range of mountains to cross before letting down for our destination. But the ceiling lowered rapidly until that range was blocked to us. Upon making our 180 to return to Cumberland, Md., we flew the edge of the heavy rain. That took us off the route we had followed into the trap and presently we were over an unfamiliar town. Then we saw a roof-top sign, "Mountain City." But our map didn't show a town by that name. Meanwhile the storm had lowered even more and we had to make a forced landing. Our inquiries brought information that the building with the air marker was a skating rink, located in Frostburg but called "Mountain City." The roof-top painter and the map-makers ought to get together and settle on one or the other; improper and incorrect air marking can become very hazardous to pilots. A local private plane owner, Chuckles Keiling, helped us during the storm and obtained lodging for us.

When we finally did reach Connellsville that same morning, we found an excellent paved field, very well marked. It was lunch time and we enjoyed the airport restaurant's home-cooked food. We highly recommend Connellsville Airport at mealtime. After lunch we flew the Luscombe to Bettis Airport in Pittsburgh. It is a good all-weather field and we have not experienced better service than that given us by Alex Gerben, who directed us to the pit as we landed.

As all pilots do, and moreover because we are also airport operators ourselves, we always feel good when we taxi in at an airport where the workers really go after our business. This was found at the Wheeling, West Virginia, county-owned airport, which has a beautiful ad building, fine restaurant, excellent service and personnel

TEXAS

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who make you feel welcome. That's the way with a wide-awake airport. It's a pleasure to visit them.

Ohio

Moving along, we went into the Municipal Airport at Zanesville, Ohio, a paved field, and met the lads from Dutro Motors, Inc., who had just taken a lease on the commercial activity part of the field. They were to have by mid-summer an ad building, with a restaurant and weather station. Shop facilities were excellent. We were headed for Newark, Ohio, to RON but flew the Luscombe (thankful, again, that it kept us dry) through a couple of hours of heavy rain. J. B. Carson, manager of the Newark Airport, outlined his plans for making the airport even better to serve vacationists—his town is in the heart of some of Ohio's finest playground and resort area. The field is very close to town, which has good hotel accommodations.

Pushing onward next morning, we by-passed Port Columbus to visit a beautiful turf airport, Norton Field, at Columbus, Ohio. As is happening in far too many cities, this excellent operation, conducted by Swingle Aviation Co., can get no more than a month-to-month lease and there was a possibility of the field being closed soon. We think such airports are vitally needed where nearby municipal fields are congested (as at Port Columbus)—the average private flier prefers smaller turf fields, if their service is good, to congested big-city airports. There is excellent service on many big-city municipal fields because heavy traffic means larger volume of business which in turn supports elaborate service facilities. We flew from Norton Field into Port Columbus and found both F. A. Lane of Lane Aviation and L. W. Simpson of State Aviation working hard and enthusiastically to attract and keep private fliers and transient traffic. Because they're such hard workers, we're all for them.

(Continued on page 40)

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SAVINGS TO AIRLINES

(Continued from page 24)

middle man without adequate stock. Not enough of us have catalogs and those who do have, do not carry enough information and are frequently out of date. Our technical knowledge is limited, and the apparent lack of interest, and possibly funds, has had its effect on our low inventories. The distributor must carry an on-hand supply ready to meet the airline's needs at a moment's notice and must face all of the other requirements which go with his new-found status and responsibility.

Here, I believe, is a key to airline reluctance to deal with the distributor. All of us know of instances where distributors have fumbled the ball by failing to do anything much but stake their claims to commissions—ignoring a golden opportunity to help the airlines, themselves, and the industry in general by providing a real service. Those of us in the distribution business now must go all out to prove that those particular distributors were exceptions, rather than the rule.

At Southwest Airmotive, in laying foundation stones for mutual goodwill and confidence with the airlines, we have gone considerably out of our way to prove the point. With the airlines' close assistance, we have determined each line's actual inventory and have projected the usage on each item.

At no profit to ourselves, we have helped move overages in inventory from one airline to fill needs of another. From inventory and usage data, we have prevented them from erroneously ordering additional stock when ample supplies already existed. While reducing their existing inventories, we are carefully building up our own. By constant personal contact, we are doing our best to keep informed of their needs and problems on a day-to-day basis.

Many Distributors Ready

To make certain that I was not alone in these ideas, I wrote the distributor members of ADMA and polled their collective thinking in the matter. From the nature of their replies, I am more convinced than ever that mature and farsighted distributors everywhere stand ready to give the manufacturers and the airlines a new high standard of service, built on lasting common-sense principles.

One of the distributors wrote that he knows of an airline which has expanded its purchasing department to such an extent that it costs them $12 to process each purchase order. That seems pretty high to me, but nevertheless it points up the fact that instead of making out countless purchase orders to a large number of different suppliers, the airline can combine many of them into one addressed to the distributor, who stocks a great variety of merchandise. The airline can make its payments in one check

to the distributor and generally pull together the loose ends of supply's administrative side.

Other letters underscored savings to the airlines in such things as telephone and telegraph and each stressed the obvious reductions in airline paper work, with resultant savings in personnel.

The distributors definitely can fill the gap in emergencies. We offer emergency 24-hours-a-day parts availability, seven days a week—it doesn't take that long to get the parts from the warehouse into the airline's hands. In time of strike or other factory shutdowns, the distributor network encompassing the country stands ready to keep things moving smoothly.

Freight savings possible through such a program are easily seen. Distributors' warehouses are strategically located—they are literally in every airline's own backyard. This means savings of valuable time, as well as valuable and needed money.

Benefits To Manufacturers

Just as they apply to the airlines, many of these savings and advantages apply to the manufacturer. For instance, in the case of Scintilla and Southwest Airmotive, three airlines' orders now are replaced by one from us. In any line of endeavor, a two-thirds reduction in order taking with no lag in sales volume is bound to add up on the black side of the ledger. We keep down the manufacturer's cost of distribution by spreading over many products the expense of operating a sales force and delivery system. Distributors maintain stocks of the manufacturer's lines at strategic points throughout the nation—at the points nearest the places where they are needed and used. We are handling many small orders for the airlines that the manufacturer won't and cannot handle profitably.

Our intent is to strengthen, rather than to weaken, the factory-airline relationship by giving to it an on-the-spot vigilance which it otherwise cannot have.

The manufacturer must play a vital role in this program—a role without which the whole arrangement probably will fall on its face between home and first base. He must give us a sufficient margin of profit to permit us to sell to the airlines without losing money and to offer the airline an attractive enough discount to make their dealing with us a sensible, money saving undertaking.

This is strictly a dollars-and-cents proposition to all concerned. A chance such as this, enabling all of us to do business more profitably and more efficiently, deserves the most careful and thorough consideration.

I know that we among the distributors welcome such a chance. I know of at least three airlines with similar sentiments. I know of at least one manufacturer who has taken the step and found it profitable. ★ ★ ★

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- ***SOHIO HANDICAP TROPHY RACE***—closed circuit classic for P-51, P-38 and P-63 airplanes
- ***KENDALL TROPHY RACE***—75 mile competition for women pilots only
- ***TINNERMAN INTERNATIONAL TROPHY RACE***—105 mile free-for-all competition
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VOL. IX, NO. 6 AUGUST, 1948

Modern AIRPORTS

THIS MONTH'S MODERN AIRPORT is Central Airport at Camden, N. J., just across the river and only 4½ miles from central Philadelphia. There are no landing fees for private and non-commercial craft. Paved and lighted runways are 2,700-ft. N-S, 3,000-ft. E-W and 2,850-ft. NW-SE and the 187-acre airport is devoted mainly to private flying. Operations on the field include Spartan Aero Repair, a division of Spartan Aircraft of Tulsa and fully-equipped to service and overhaul all types of planes and components. Central Airport Flying Service, which operates the field, is sales dealer for Beechcraft, Cessna, Swift and Ercoupe. On the field is a good restaurant. Hourly train service to New York is available.

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Airport Leases and Contracts

Is your airport agreement valid? Here's timely advice from a CAA authority's report to the recent Texas A. & M. airport management conference

By ALLEN H. BARR
Civil Aeronautics Administration

AIRPORT agreements cover a host of subjects but principally include the following types: (1) contracts for the employment of airport managers; (2) licenses issued to air carriers, fixed-base operators and non-aeronautical concessionaires which authorize the use of specific airport areas; (3) leases and contracts for the operation of an entire airport.

The distinction between a lease and a contract can be clarified if you imagine that you control a municipal airport. The city wants to erect a large hangar for dirigibles in your tie-down area. Now, if you are a lessee, you have full dominion over the premises and may exclude the city until the lease is terminated. But if your privileges stem from a contract rather than a lease, the city may prevail. By contract, the airport operator gains only those privileges which are expressly stated or necessarily implied. By a lease he secures exclusive dominion over the entire premises for he gains all the rights of a contract, together with many unwritten, additional rights under the real property law.

Validity of Public Airport Leases

Unless there is statutory authorization, all-inclusive leases of public airports are invalid. The courts have concluded that: (a) public airports are held in trust for the public; (b) private operation is not a public purpose; (c) funds raised by taxation should not be used to subsidize private undertakings. Before entering into a lease agreement for a public airport, it is therefore of great importance to ascertain whether state statues authorize comprehensive leasing of public airports. If not, tenure of the lease might be at the mercy of any irate taxpayer or property owner.

If such statutory power exists, the next question is whether or not the lease of a portion of the public airport is valid. The few decisions on this point, involving leases of the building area, all give an affirmative answer on the basis that such partial use is incidental to and does not interfere with the public use. It can be reasonably assumed that courts will not invalidate leases of premises for dining rooms, repair facilities, gasoline supplies, baggage, hangars and other such facilities. It does not follow, however, that a lease on the public landing area would be approved.

Airport agreements now in effect are sufficiently similar to permit group analysis. Let's discuss three phases of such instruments: First, standard provisions which are found in nearly all airport agreements; secondly, special clauses which are necessitated where federal funds are involved; and thirdly, provisions which are of particular importance to aviation industries.

General Airport Agreements

DESCRIPTION: Although it is axiomatic that each agreement should describe the real estate premises involved, I have been astonished to review many "leases" neglectful on this point. Further, a careful delineation should be made between those areas which are leases exclusively to the lessee and those like parking lots, landing strips and lobbies, which are licenses for use in common with others.

SERVICES PERMITTED AND REQUIRED: The next group of routine provisions is that which enumerates the types of services which are granted and required. The current practice is to list in elaborate detail the service in which the airport user is privileged to engage. This tendency is particularly evident in agreements drafted for the major airlines and has a number of undesirable features, particularly if the concessionaire obtains the right to engage in operations which are not germane to his principal activity. On the other hand, most airport leases fail to state the minimum services that are required. In my opinion, it was not wise for the owner of an airport to grant airport privileges without obtaining a reciprocal promise that some adequate services would be rendered. Should not the lessee agree to promote aviation, to provide a minimum of adequate equipment, to employ experienced technicians, all to be available to the flying public?

FINANCE AND INDEMNITY: The next body of provisions are financial in nature. Careful provisions are necessary to spell out exactly how the fees are to be calculated and what accounting systems are to be maintained. The privilege of inspecting the lessee's records is not unusual. If the agreement authorizes an airport operator to collect airport revenues from other users, the exact method of handling the proceeds should be written out. And do not forget to state who pays the utilities and taxes.

Complicated indeed are provisions which require the airport user to indemnify and "hold harmless" the owner of an airport, even a public one, from losses resulting from negligence and other torts. The background is this: In many states, public agencies can be held liable for injuries to third parties using public airports. The fundamental rule of law is that where a city or county acts in an essential or "governmental" capacity (such as in the prevention of crime, or the preservation of public health), the public body is not liable for its torts. On the other hand, if the agency acts in its "proprietary" or ownership capacity (as where it owns a water system, or a municipal garage), it is liable for negligence much in the same fashion as private individuals. There is at present a conflict of authority as to whether the operation of a public airport is a governmental function or a proprietary one. The majority view is that ownership of a public airport is considered to be a "proprietary" function. In such jurisdictions, public agencies may be held liable in damages if the care ordinarily exercised by a "reasonably prudent man" is not exercised in the operation of their public airports. Court decisions contain many examples of the accidents for which a public agency (as well as private airport owners) might be held liable:

1. The loss of a plane by fires caused by the neglect of airport employes.

2. Personal injuries to the pilot of a plane colliding with road machinery left on the runway without proper warning or signals.

3. Destruction of a plane overturned in a sudden gust of wind after being temporarily removed from a hangar.

4. Damages to adjacent lands caused by airport dust and rain drainage.

If airport owners are vulnerable in such accidents, it is only sound business judgment that they should require some guaranty from individual users against possible claims and lawsuits. This guaranty is contained in the so-called "hold harmless" clauses.

If you are an airport operator, user,

or lessee, you will ask: What additional burden does a "hold harmless" clause place upon me? As to your own acts of negligence, primary liability rests on you, but the "hold harmless" clause may require you to assume the burdens of defending the owner (should he be sued jointly with you, or even separately) and paying any and all judgments. But the claims or lawsuits may arise from negligence of the airport owner. There are several classes of cases in real estate law where an airport lessor might be directly liable:

1. Where the lessor expressly promises or volunteers to make repairs.

2. Where he actually knows of hidden defects which are not known to the tenant.

3. Where he retains parts of the premises for use in common by lessee and third parties.

4. Where there are unsafe conditions on premises which are made available for future use by the public.

Whether or not you, as an airport operator, will be required to defend and to pay claims in such cases, depends upon the phraseology of the "hold harmless" provision. You can see, therefore, why careful study of airport agreements is recommended.

A "hold harmless" provision is quite useless, unless guaranteed by one who is financially responsible. Accordingly, it is increasingly popular to require the lessee to obtain appropriate airport insurance. Although prudent airport users generally insure for their own protection, their policies do not automatically benefit the lessors. However, if the lease expressly provides that the lessee must procure insurance, then the courts will hold that the lessor has an equitable interest in subsequent policies bought by the airport lessee. A more straight-forward approach is to state that the lessee or user shall obtain insurance at his own expense, that the policies be obtained for the lessee and the lessor "as their interest may appear," and that such policies (1) insure against destruction to airport facilities, and (2) guarantee defense against and payment of all claims and litigation against the airport owner.

MANAGEMENT: A fourth group of typical provisions are those which, for lack of a better title, may be called provisions on management. An important example is the provision which designates who issues airport rules. Experience shows that a high percentage of airport agreements fail to specify whether the power to establish airport rules is granted to the man on the field or reserved to the legislative body of the city or county.

On the other hand, the subject of exclusive rights is rarely ignored. There is a wide tendency on the part of airport users to demand exclusive rights, but there is also a growing suspicion on the part of some enlightened operators that such exclusive rights do not actually produce the maximum revenue anticipated. A substitute clause of increasing popularity is one which provides that the lessor will not grant more favorable privileges or fees to any other airport user.

Now, as to repairs and maintenance. The law is that the airport landlord has no implied duty to repair the premises. Neither is there an implied duty on the part of a tenant to make repairs. Consequently, if the airport is to be kept in tip-top condition, the agreement should specify who should pay for the repairs and maintenance of the airport. This involves too many factors to permit discussion here. I can only suggest that separate consideration be given as to maintenance of (a) the landing area, (b) the administration area, and (c) the other business areas.

DURATION: A fifth group of provisions is that which deals with the duration of the lease. The length of the agreement will, of course, result from the bargaining power of the respective parties. There is a tendency on the part of agencies owning public airports to follow the CAA policy, which favors comparatively short terms, such as three years, with clauses for renewal or renegotiation. On the other hand, airport users voice considerable objection to short-term agreements, which, they argue, tend to stultify investment of private capital (since the period of amortization is too short). They also point out that short-term leases handicap a lessee from obtaining progressive sub-lessees, since the sub-leases can endure no longer than the prime lease.

Cancellation clauses in airport agreements are very similar to those used in ordinary business leases and contracts. They should specify whether the agreement may be terminated (1) upon notice, or (2) because of a broken promise, or (3) following certain events, such as when a petition is voluntarily filed for bankruptcy. I strongly urge that the cancellation clauses be drafted with extreme care and great imagination. You should not be deceived into the supposition that cancellation clauses are unimportant simply because both parties are friendly and cooperative at the time when the agreement is signed. Friendliness may not endure for the term of the agreement. If the cancellation clauses be well prepared, even antagonistic lessees and lessors can settle their differences fairly upon such pre-established rules. If you lacked the foresight to establish your rules in advance, you may eventually need a court for your forum.

It has long been good business practice to provide for either the suspension or termination of building leases in the event that the necessary buildings are destroyed by fire or casualty. Airport leases are adopting the same practice. For example, if the airport dining hall is destroyed by fire, the food concession becomes meaningless. If you lease facilities which can be destroyed, you should remember that a lessee is not entitled to recover back any advance rent paid prior to destruction of the premises. So, when you write your fire cancellation clause, be sure to require the lessor to repay you any unused rents.

Options to prolong the terms of a lease or contract can be of two types:

1. Options to extend the agreement, upon the same terms, for further periods of time.

2. Renegotiation clauses which provide simply that when the basis agreement expires, the parties will negotiate a new contract.

The first type—option to extend—conveys the more definite rights. Most of the airport agreements which I have seen give such options to the lessees. Usually it is a one-sided affair, for rarely does the airport owner retain the power to veto the lessee's option, or to exercise an option of renewal in his own behalf. On the other hand, a renegotiation clause puts each party on an equal footing, but is virtually worthless from a legal point of view. Features of both clauses are sometimes incorporated in agreements which provide that the lessee may automatically renew the lease at his option but that the fees must be renegotiated.

The transferability of airport agreements is all too frequently covered by a short provision which provides merely that there shall be no assignment unless the lessor consents. I strongly recommend that clauses against assignment be given intensive scrutiny by the owner's draftsman, in order to preclude the countless interpretations which the courts will read into provisions against assignment. For example: Assume that you lease a hangar to a tenant who agrees not to "assign" his lease. Later he sublets one-half of the space, without your consent, to an undesirable sub-tenant. The courts will likely rule that you have no grounds of complaint, since there is a recognized difference between assignment and a sub-lease. Your clause against assignment was too brief and inadequate. By the same token, you would not be protected if the lease was assigned by operation of law to a referee, receiver, or trustee, should the lessee become financially irresponsible. Good draftsmanship is obviously needed.

Let us assume, however, that the assignment clearly violates your agreement. What are your rights? Under the terms of your contract, you may declare the master lease forfeited and repossess the premises. On the other hand, you may accept rent from the new tenant, thereby consenting to and ratifying the assignment. Such ratification does not mean that the original tenant is excused. To the contrary, he remains responsible to you for the payment of the rent, should the new

(Continued on page 37)

Questions and Answers For Airport Operators

Clubs Can Use Unsaleable Planes

QUESTION: What are we operators going to do with the airplanes we no longer need in our flight training programs? Since you have been in and out of our field several times in the last few years, you probably know we have a field of our own and have operated in this small town for a good many years. We haven't too big a market for used airplanes and right now we can't get a decent price for either of the two 2-place aircraft that are surplus to our needs. We know you're not miracle-men, but can you come up with an answer that at least is worth a try?

ANSWER: You have a real problem. We don't think the main problem of those two airplanes is how much you'll lose when you sell them. We think it involves other losses. In the first place, you operate a school charter service, hangar, shop, and gas service. You employ some people who serve as instructors, mechanics, and line service men. We know that sounds like a lot of people but as we remember it, that force consisted of three people besides yourself and your wife. Your living and theirs has come not from flight training alone but from all the things you had for sale on your airport.

Your problem seems to be one of determining how to sell those two trainers to the best advantage to yourself and your business. If you can dispose of them so that the aircraft will remain in use on your field and in your community you will retain at least some of their power to bring you revenue—from gas sales, storage, maintenance.

Obviously from your letter you have tried to sell them, probably to individuals. You've trained a fair number of GI's. How many of them are still flying? How many of them as individuals can afford an airplane at the present stage of their economic progress? Yet they represent a potential market if we can bring their costs within their means. If we wait until these young pilots can afford to own airplanes individually we may have waited so long that our market has lost interest, but if we can find a way to keep them flying now, we may save a great many of them for the time when they can buy and operate aircraft.

We've given a lot of thought to this, and we've talked to a great many operators, CAA men and pilots. Here's an answer in two words — "flying clubs." Don't turn away from the idea, even if you're one of those who don't believe that flying clubs are workable. We know that some operators and airport managers feel that clubs are undesirable, that they are poor risks, that they can't be controlled, and that they take business away from schools and rental operators. Yet such clubs are well established on many airports. Let's see what advantages they afford:

1. Through multiple-ownership they provide lower capital investment.

2. Through greater hours of use through multiple-ownership they provide lower flying costs.

3. They keep a greater number of people interested in flying.

4. They afford additional sources of sales of gas and maintenance services.

5. They may easily form a nucleus of social and economic forces favorable to aviation when needed in the community.

6. By continuing aircraft in operation club aircraft provide a greater market for income to instructors, mechanics and line-men. These are those employes of yours.

Don't sell flying clubs short. There have been and still are hundreds of well-managed, well-behaved flying clubs. We are sure that many operators would rather keep an active club ship as a tenant than put an aircraft on the block for whatever price it will bring. We recall Fulcher Armstrong up at Wichita Falls telling us about a time several years ago when he gave old aircraft to groups of pilots on the basis where the groups agreed to get maintenance, repairs, storage and gas from him for a year. Maybe those groups weren't called clubs but that was essentially a club idea.

To be successful a flying club should not be just a loosely-knit group of partners. It should be well organized for management, economic and control purposes. Many clubs are incorporated as non-profit organizations, that form being considered preferable to a partnership because of the obligations and liabilities involved. It should have an active and actual head or manager. Its membership should consist of people with common interests of a nature outside of aviation interest, such as membership in civic or other organizations, affiliation through common employment, church, school, legion post or fraternity. They should be people of a congenial nature. Field owners and airport managers may require assurances of co-operation in compliance with field rules and regulations. Each such club should have well-formulated by-laws.

As an operator who has two aircraft for sale you easily can start your prospective club off on the right track. Space does not permit our giving complete information on organization and operation. However, there have been a number of texts distributed on this. Some of them are:

"How to Organize a Flying Club," Piper Aircraft Corp., Lock Haven, Pa.

"Flying Club Constitution and By-Laws, You Can Fly for $2.95 An Hour," Luscombe Airplane Corp., Box 2128, Dallas, Texas.

"How to Form an Aeronca Flying Club," Aeronca Aircraft Corp., Middletown, Ohio.

We believe Cessna also has some material on clubs, and we recall seeing a mimeographed pamphlet, "How to Organize and Operate a Flying Club," prepared by the Office of Aviation Training and the Office of Aviation Information, CAA, Washington, D. C.

We think it's worth trying. In some cases it may mean the difference between airports and pastures.

Chain Operators for Small Fields

QUESTION: The City Council has directed me to get an answer to the following question. In view of the fact that we have no one locally who wants to take on the operation of our small town airport and hangar, is there any reason we should not give consideration to an offer from an out-of-town operator who wants to lease the hangar for a branch operation, giving flight training, charter trips, and selling gas?

ANSWER: No reason. In fact, in towns the size of yours, where at present the volume of expected revenue does not seem adequate to justify capital investment necessary to provide all the aeronautical services desirable, chain or pool operation may very well be the means of providing more adequate service than you could otherwise obtain. There can be considerable savings to the chain operator in costs of equipment and labor which may enable him to operate more economically and still give adequate service. Let's look at a hypothetical chain of operations on perhaps five airports within a reasonable distance of the operator's main base. These are some of the advantages he has from the cost and service viewpoint when compared with six individual operators:

1. Management and sales forces can be combined yet flexible enough to provide good management and selling at all six ports.

2. Maintenance and shop facilities can be built up at the base airport to serve aircraft on all six probably better than six small shops. Parts inventories, a major factor of repair cost, can be held to a minimum by centralized rather than scattered shops.

3. One bookkeeping set-up instead of six.

4. Charter service can be more adequate since the base operator can quickly ferry over a suitable aircraft which an individual operator might not be justified in owning for the limited business now possible from one airport.

5. Both instructors and training aircraft can be shifted to suit the individual community and its current needs.

Be sure, however, of what you want in the way of service and then find out if the operator can give you those services.

Coin-Vending Gas on Strips

QUESTION: There's been some talk of putting in cheap, single landing strips in some small communities in order to bring them in reach of air transportation. I heard some talk of this in Oklahoma. If a town doesn't have enough air activity to warrant anything but an air strip how can it be expected to support an operator and, without an operator, how can a pilot get gas?

ANSWER: In the first place you can have an airport without an operator. Just because a town is small, that is no reason it should be denied access by air. We hope to see many small towns, too small now to support an operator, have an adequate air strip—and gasoline. There are several ways of doing this. First, there comes to mind the close-in strip along a highway where a filling-station operator can serve both automobiles and aircraft. Next, there is the strip not so located. That poses a problem today—unless some local filling station operator can be induced to stock aviation gas and deliver it by pick-up truck on call.

But there's another way we believe that will come into use. Have you been reading about those self-service gasoline stations for automobiles out in California? Why can't we draw on our imagination long enough to envisage the air strip of the future with its T-hangars for the local owner and its gas pump for both local and transient? That gas pump will be something to see. It will dispense gasoline and packaged oil on a coin-operated basis. It will have its own coin-changer built into it. It will have a telephone (coin-operated, of course) incased in the outer shell. That will provide all of the essentials — fuel, communications and ground transportation (call a cab of course). Why not? Coin-operated devices are used now for every conceivable purpose. We shouldn't be surprised to find some inventive genius has already solved this problem and is just waiting for his market. ★ ★ ★

CONTRACTS AND LEASES

(Continued from page 35)

tenant default. In fact, you have relatively few rights against the new tenant directly, unless he agreed with the original tenant to assume the obligations of the prime lease. For this reason it is sensible for you as the original lessor to require that any sublessee or transferee under the lease specifically assume the obligations of the prime lease, before approving the transfer.

The termination of any lease raises a most important question. What property may be removed from the airport by the retiring tenant? The general rule of real property law is that improvements made by the ten-

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Airmen's Calendar

Sept. 2-4 — National Flying Farmers Convention, Columbus, Ohio.

Sept. 4-6 — Twenty-Second Annual National Air Races, Cleveland, Ohio, events as follows: Sept. 4 — Bendix Trophy Finish, 105-mile Tinnerman International Trophy, Goodyear Trophy Heats; Sept. 5—Allison Jet Trophy, Sohio Trophy, Kendall Trophy, Goodyear Trophy Semi-finals; Sept. 6—Goodyear Trophy Finals, Thompson Trophy and Air Force Jet Dashes.

Oct. 6-8—Annual Meeting, National Association of State Aviation Officials, Copley Plaza Hotel, Boston.

Oct. 8-10—TPFA Convention, Baker Hotel, Mineral Wells.

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High praise for Burnum Venturi Spray Systems comes from E. P. Stubblefield, Vice President, Rainbow Dusters, Inc., Los Animas, Colorado, as follows: "We have found our Burnum Venturi Spray unit more than met our expectations. We had 100% kill using DDT and Clorodane. With Clorodane we have had good grasshopper control. 2,4-D on wheat and corn is also sure-fire for weed spray with this unit. Maintenance is minimum with no plugging or trails. We sincerely recommend the Burnum Venturi Spray System."

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ant may not be removed, for having been affixed to the land, they have become the property of the land owner. A recognized exception to this rule is that the tenant may remove his trade fixtures. It has been twice judicially held that hangars erected by lessees are trade fixtures and may be dismantled and removed by the tenant. However, your own state courts may have a different view. Since relationships between tenants and landowners, when leases end, are frequently less friendly than before the leases are signed, common sense suggests that the lease clearly state exactly what improvements, if any, may be removed, and during what interval of time.

Where Federal Funds Are Involved

The provisions which we have just considered are those used widely in nearly all forms of airport agreements. Now let us consider additional clauses which must be used if the airport is one on which funds are expended by Federal civilian agencies. As to such Federally-assisted airports, Congress has imposed a duty on the Civil Aeronautics Administration. That duty stems originally from the requirements of Section 303 of the Civil Aeronautics Act of 1938, which contains these words:

"There shall be no exclusive right for the use of any landing area or air navigation facility upon which Federal funds have been expended."

This type of statutory mandate is, of course, not self-operative since it carries no specific criminal or civil penalties. Consequently, the law has necessarily been supplemented by administrative action, taking the form of contracts between the United States on the one hand, and the owners of public airports on the other. A good example of such a contract is the one recently used in the wartime program, and set out in the well-known AP-4 Resolutions. By such a resolution a city or county would promise that in return for Federal aid, the airport would be operated for the benefit of the public, that no exclusive rights would be granted, that the sponsor would not surrender control of its airport to others, and that airport leases and contracts would not be executed without notice to the CAA. Of a similar general tenor are the terms of agreement with the CAA under the Federal Airport Program and with the War Assets Administration under the Surplus Airport Property Act.

Thus it occurs that public agencies owning airfields improved by Federal funds will, from time to time, submit airport agreements to the CAA for review. The scope of this review is important. The CAA is not officially concerned as to whether or not the agreement constitutes a satisfactory business deal, nor will the CAA insist upon the alteration of any unwise arrangements which it believes detrimental to civil aviation. For example,

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the CAA policy is that long-term airport agreements are inadvisable and that the contract form is more to be preferred than a lease form, but the CAA will not insist that its advice on such matters be adopted. On the other hand, airport agreements are minutely reviewed by the CAA in order to determine if they conform to covenants set out in the Federal-State contracts. Where necessary, the CAA may require that certain standard clauses be added to the agreements. These clauses act to place the following limitations on airport users:

1. That the airport facilities be used for the benefit of the public.
2. That there be no unjust discrimination.
3. That no excessive, discriminatory or unreasonable charges be made.
4. That no exclusive rights in violation of Section 303 be claimed or exercised.
5. That the airport owner retain the right to improve and repair the landing area and to protect the aerial approaches.
6. That the agreement or lease be suspended, should it prove inconsistent with military use during national emergencies.
7. That the agreement or lease itself be subject to any existing or future agreement with the United States affecting the expenditure of Federal funds of the airport.

The CAA provision which prohibits the exercise of exclusive rights is one which has received considerable attention. The CAA definition of exclusive rights, based on an opinion of the attorney general of the United States, rests on a distinction between activities on the non-landing area (where exclusive rights may be exercised) and activities on the landing area (where exclusive rights are forbidden). Accordingly, it is permissible to grant or exercise exclusive rights, for hangar space, for repair, services, for the sale (although not the rental) of aircraft, for petroleum supplies, and for other non-aeronautical concessions. These permissible exclusive rights may not be exercised in an unjust and discriminatory manner, however. On the other hand, activities such as the rental of aircraft, charter flights, flight instruction, aerial photography and advertising, and even airline operations, may not be conducted on an exclusive basis at federally-supported airports, since these are activities which predominately necessitate the use of the landing area. There is an exception to this last rule, however, for the exercise of any type of exclusive right is considered permissible if it is required in the interests of safety.

So much for special clauses at the instance of the Federal government. Next month we will consider airport agreements as drafted by the aviation trades. ★ ★ ★

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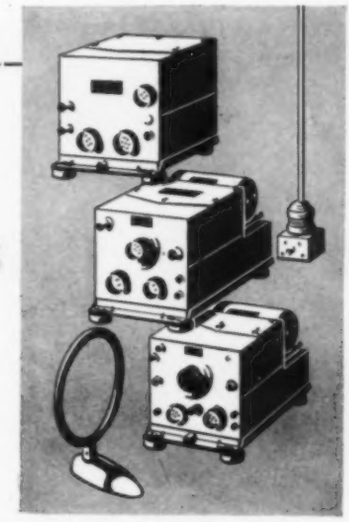

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AS WE FOUND IT

(Continued from page 29)

Incidentally, Mr. Lane gave us a good idea which others might find useful in establishing airport rental auto service. Where there are numerous employes in an operation or on the same airport, he suggested that they form a corporation in which each of the employes would buy shares in an auto to be operated for rent.

After waiting out another rain storm, we took off but extremely high winds closed many smaller airports to us so we kept flying until we reached Dayton and selected Eejay Lauterbach's Dahio Airport for our next RON. We spent the balance of the evening and until 10:30 a. m. trying to convince the Lauterbachs that private flying would support a new ad building, yet to be completed.

(Next Month: Westward through Indiana, which has one of the best airport systems in the nation.)

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Southern Flight commends the enlightened leadership at Texas A. & M. College for its vision and progressiveness . . . its desire to accelerate technical improvements in personal aircraft for a world in need of efficient peacetime aviation resources.

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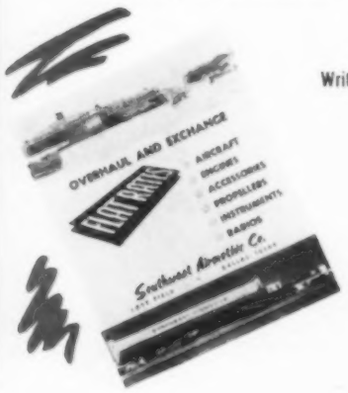

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